IMPERIAL MYCOLOGICAL INSTITUTE
13 AUG. 1936

MALTA

# ANNUAL REPORT

ON THE WORKING OF THE

# DEPARTMENT OF AGRICULTURE

DURING

## 1934-35.

Published by Authority.

MALTA
GOVERNMENT PRINTING OFFICE.

1936.

The following table of equivalents of certain Maltese and English weights and measures is given here to aid the intelligence of these reports.

WEIGHTS.

| *Maltese* | | *English* |
|---|---|---|
| 1 rotolo | = | 1.75 lbs. |
| 1 qantar or 100 rotoli | = | 175 lbs. |
| 1,280 rotoli | = | 1 ton. |

MEASURES.

*Wine*: 1 barile = 9.50 gallons

*Land*: 1 tummolo or 6 mondelli = [illegible] acres ·2̇7̇

16 tummoli or 1 salma = 4.4̇ acres

*Straw*: 1 soma = a load of 10 bundles in Malta and 8 bundles in Gozo. The weight of a soma is however the same in Gozo and Malta.

## ERRATUM-CORRIGE.

Gazette Supplement No. LXIII—24th July, 1936—Report of the Department of Agriculture for 1934-35.

Table of Equivalents of certain Maltese and English Weights and Measures.

*Land*: 1 tummolo or 6 mondelli " = ·02̇7̇ acres" *should read* " = ·2̇7̇ acres"

# Report of the Department of Agriculture for the year 1934-35.

OFFICE OF AGRICULTURE — MALTA.

Valletta, 8th June, 1936.

Sir,

I have the honour to forward the subjoined report on the Agriculture of Malta for the agricultural year 1934-35 ending in October and on the working of the Department of Agriculture during the financial year 1934-35.

I have the honour to be,

Sir,

Your obedient servant,

G. MICALLEF,

Director of Agriculture.

His Honour
The Lieutenant-Governor.

## Report of the Director.

### I. ADMINISTRATION.

#### HEADSHIP OF THE DEPARTMENT.

The title of the Head of the Department, formerly styled "Superintendent of Agriculture", was abolished by Ordinance No. XIX of the 20th March, 1935, and replaced by that of "Director of Agriculture".

#### INCREASE OF STAFF.

The following new appointments were made during the year:

Mr. A. C. Shill, M.Sc., A.R.C.S., D.I.C., to be Adviser in Marketing and Controller of Agricultural Exports, on contract for five years with effect from the 29th November, 1934.

Mr. F. C. Jessop, B.Sc. (Agr.), to be Adviser in Animal Husbandry also on a five years contract, with effect from the 5th May, 1935.

Mr. John DeBrincat and Mr. Louis Darmanin, chosen by public competition, took up their duties as Horticulturist and Assistant Horticulturist at the Għammieri Experimental Farm as from the 1st December, 1934. Mr. Joseph Cesareo, also chosen by public competition, was appointed Poultryman at the Għammieri Stock Station on the 24th December, 1934.

Each of these three young men will be required to undergo one year's course of training in a recognized institute abroad. Mr. Cesareo is now reading for the Poultry Certificate at the Poultry Institute attached to Harper Adams Agricultural College in Newport, Shropshire, England, and will terminate his course by the end of July, 1936.

Mr. Carmelo Borg was appointed Storekeeper at the Ghammieri Experimental Farm and Stock Station on the 1st July, 1934.

Mr. James Cousin, A. & C.E., and two others have been engaged by daily wages as Soil Engineer and Soil Inspectors respectively in connection with the enforcement of the Fertile Soil Ordinance No. II of the 8th January, 1935.

Mr. George Busuttil, Assistant Apothecary, has been employed also on daily wages, as poultry and pig vaccinator since July, 1934.

### Legislation.

During the year under review the following laws and regulations have been enacted :—

The Agricultural Returns Ordinance No. 1 of 1935. (Govt. Gazette Supplement No. IV), 8th January, 1935.

The Fertile Soil Preservation Ordinance No. II of 1935, (Government Gazette Supplement No. V), 8th January, 1935.

The Agricultural Produce Export Ordinance No. III of 1935, (Government Gazette Supplement No. VI), 18th January, 1935.

Regulations for the Export of Potatoes published by Government Notice No. 28 of the 29th January, 1935. (Government Gazette No. 7999 of the 29th January, 1935.)

The Importation of Animals Restriction Ordinance No. IV of 1935, (Government Gazette Supplement No. IX), 6th February, 1935.

The Importation of Swine Prohibition Order published by Government Notice No. 43 of the 8th February, 1935, (Government Gazette No. 8003 of the 8th February, 1935).

The Import and Export Duties (Amendment) Ordinance No. XV of 1935, (Government Gazette Supplement No. XXXV.), 29th March, 1935, including *inter alia*, a revision of the protective duties on wine.

The Director of Agriculture (Designation) Ordinance No. XIX of 1935, (Government Gazette Supplement No. XXXIX), 29th March, 1935.

Regulations for checking the spread of the Roncet of the Vine, published by Government Notice No. 157 of the 26th April, 1935. (Government Gazette No. 8027 of the 26th April, 1935).

The Importation of Poultry Prohibition Order published by Government Notice No. 186 of the 22nd May, 1935. (Government Gazette No. 8035 of the 22nd May, 1935).

The Agricultural Returns Amendment Ordinance No. XXII of 1935 (Government Gazette Supplement No. LII) 31st May, 1935.

### Special Reports.

This Report includes special reports on the following Branches :

a) Experimental Farm — Appendix I page XXII.
b) Viticulture and Oenology — Appendix II page XXXVII.
c) Gardens and Plantations — Appendix III page XLIV.
d) Plant Pathology — Appendix IV page LIII.
e) Agric. Exports and Marketing — Appendix V page LXII.
f) Soil Preservation — Appendix VI page LXXV.

### Revenue and Expenditure.

A comparative statement of the expenditure and the revenue for the financial years 1933-34 and 1934-35 is contained in Tables I and II.

## II. STATISTICS.

### 1. Meteorological.

During the year 1934-35 the rainfall was exceptionally abundant (27.37 in.) and evenly distributed throughout the rainy period. The first useful rains fell on the 16th September, and germination of *sulla* started within a week, and desultory showers towards the end of the month were sufficient to sustain growth. There were again daily showers from the 7th to the 21st October, from the 5th to the 14th November,

and from the 20th November to the 2nd December, followed each time by a short spell of dry weather. A long period of daily downpour lasted from the 14th December to the 13th February. Seventeen days of March were wet, but April, apart from light showers at the close, was exceptionally dry.

The rainy season lasted over six months, ending practically by the close of March. The monthly and total rainfall for the year as compared with that of 1933-34 is shown in Table III.

## 2. Crops.

The total area under cultivation during the year 1934-35 was 48,089 acres, not including 23½ acres estimated as planted with tobacco. This acreage was cropped as follows:— 18,765 acres under cereals; 13,563 acres under vegetables including melons and tomatoes; 10,906 acres under forage crops; 1,965 acres under cumin and cotton; and 2,890 acres under vines and fruit-trees. In addition, it is estimated that 5,906 acres were planted with second crops.

During the year statistics were compiled regarding the number of mechanical irrigation, pumping appliances in operation in Malta and Gozo. The results of this enquiry are tabulated below:—

| | Air Motors | Oil engines & centrifugal pumps | Water Mills "Noria" | Other Mechanical Appliances | Total |
|---|---|---|---|---|---|
| Malta ... | 250 | 80 | 238 | 97 | 665 |
| Gozo ... | 72 | 33 | 13 | 14 | 132 |
| Totals ... | 322 | 113 | 251 | 111 | 797 |

**Wheat.** 9,320 acres were planted with wheat (7,575 acres in Malta and 1,745 acres in Gozo), this acreage being almost exactly the same as that in 1933-34. Production was, however, much lower, being estimated at only 22,391 quarters (19 bushels per acre) a decrease of 16,409 quarters. The decrease in production was generally due to the excessive rain which fell during the period October to March, and to the subsequent Spring drought.

**Barley & Meslin.** The area under barley and meslin was estimated at 2,618 acres in Malta and 2,101 acres in Gozo, a total of 4,719 acres. Meslin has been grown chiefly in Gozo on an area of 1,981 acres and barley on an area of 120 acres. The estimated yield was 10,279 quarters of barley and 6,096 quarters of meslin. Last year's production was 18,953 quarters of barley and 9,657 quarters of meslin.

**Maize.** A total area of 375 acres was cultivated under maize, i.e. 249 acres in Malta and 126 acres in Gozo, as against last year's acreage of 90 acres. The estimated yield for this year was 1,629 quarters. About half the area under maize has been grown under irrigation to provide green forage during summer.

**Broad Beans.** Broad beans were cultivated on an area of 1,830 acres, representing only a slight decrease on last year's acreage of 1,857 acres. The yield is estimated at 6,865 quarters as against last year's production of 11,084 quarters. The shortage of rain in the early spring accounts for the deficiency in this year's production.

**Vetches.** Vetches were grown on an area of 2,521 acres with an estimated production of 4,741 quarters. The corresponding figures for last year were 2,702 acres and 9,084 quarters.

**Potatoes.** The cultivated area under winter potatoes amounted to 2,809 acres, as compared with 2,596 acres last year. The yield was estimated at 6,414 tons as against 4,081 tons in the preceding year. There was an increase in the area as well as in the production over last year. In consequence of the early rain, in 1934-35 season, the unirrigated winter crop germinated early and made such rapid growth that reaping was carried out at about the same time as the irrigated winter crop. The eastern district, especially around Żejtun, Żabbar, Tarxien and Għaxaq, suffered from lack of rain; germination was later than elsewhere and subsequently the plants

suffered badly from drought. A bad attack of blight appeared about the middle of November and, with the delay in reaping owing to the continuous rain during December and January, the losses on this account were heavy. Many plants were destroyed and the yield was reduced considerably, especially with the crops on irrigated land. In exposed situations, high winds caused also much damage. The average production was estimated at around 7 qantars per tumolo, the price averaging about 7/- per qantar.

Spring potatoes were planted on an area of 4,934 acres as against 4,072 acres in the preceding year. This season the spring crop of potatoes was generally below average. With the incessant rain which fell from December to February, planting could not be carried out in dry weather and poor germination resulted. Apart from the bad planting conditions the imported seed was not very healthy and many cut sets rotted either before or after germination. In certain districts the plants did not reach their full growth and yields were sometimes very low. The production amounted to 11,104 tons, against last year's production of 20,000 tons.

The Summer crop of potatoes of the local White Elephant variety, is generally grown under irrigation. The area planted during the past season amounted to 530 acres, with an estimated production of 1,740 tons, as compared with an area of 500 acres and a yield of 2,250 tons in 1934.

The average prices for the potatoes from the spring and summer crops were 15/10 and 15/- per qantar respectively.

**Onions.** The onion acreage during the past season was considerably reduced, being only 944 acres as compared with 1,289 acres in the previous year. The decreased planting was largely due to the low prices offered in 1934, and in consequence farmers preferred to sow cumin which had yielded good returns. The yield was estimated at 4,561 tons while last year's figure was 7,749 tons. The local market price for onions for export was good, being around £4. 5s. per ton, and thus leaving a margin of profit to the farmers. Farmers, however, must realise that considerable improvement is necessary in the type, grading and packing of onions for export if any stable export trade is to be established. In this connection either the Maltese Yellow variety must be improved or Spanish or Egyptian varieties must be introduced.

**Tomatoes.** Tomatoes were grown on an area of 1,228 acres, with a production of 91,810 cwts. The area under which tomatoes were planted in 1934 amounted to 346 acres, with an estimated yield of 41,470 cwts. Two principal factors have operated to encourage the growing of tomatoes, namely the establishment of three tomato canning factories and the low market price of cotton which has driven farmers to seek an alternative non-irrigated summer crop. Prices varied between 3/4 and 6/8 per qantar (i.e. 2/2 and 4/3 per cwt.), but the average price paid to the grower was 4/2 per qantar (2/8 per cwt.).

Seeds of the tomato varieties introduced by the Department of Agriculture in 1934 were distributed to farmers in Malta and Gozo. These consisted of three English varieties, "Every Day", "Best of All", and "Perfection" which are red in colour and round and smooth in shape; and of an Italian variety "San Marzano", the fruit of which is long and oval with thick walls similar to the local oval variety though less round.

Farmers and canners soon appreciated the quality of these varieties of tomatoes which yield more fleshy fruit than the local flat variety. The "San Marzano" type is fleshy and very suitable for paste manufacture. It is expected that next year the planting of these varieties will be extended considerably.

**Melons.** The area under sugar melons and water melons was 930 acres as compared with 413 acres last year. Of these 587 acres were sown in Malta and 343 acres in Gozo. The estimated yield amounted to a total of 53,272 cwts. as against last year's production of 27,633 cwts. The crop was healthy but the Spring drought reduced production considerably.

**Vegetables.** Vegetables were grown on an area of 2,188 acres, as against 3,200 acres in the preceding year, and the production was very poor, only amounting to 150,858 cwts. The yield in 1933-34 was estimated at 423,146 cwts. The reduced crop was due to the fact that when still in beds the plants were badly attacked by insects and other fungus diseases which proved very difficult to control. After transplanting the larvae of the white butterfly caused much damage to cabbages and cawliflowers and in several districts farmers were obliged to replant with other crops. The prices of vegetables were high practically all the year round. The average price being 6s/4d per cwt.

**Forages.** Forages were cultivated on an area of 10,906 acres, as against 8,818 acres in 1934, the increase was mainly due to an extended cultivation of sulla. The total production was estimated at 706,570 "some" or loads of 10 bundles each. Forage crops consisted of sulla 8,042 acres, with a yield of 521,795 "some"; green-barley 1,189 acres, with a yield of 83,230 "some"; and caterpillar 1,675 acres, with a yield of 101,545 "some". Forages germinated early in the season and no traces of disease were observed. In general very good crops of sulla were reaped; growth was favoured by the early rains and the warm weather in October and in November, and whilst it was checked by the cold weather in January and February the abundant winter rains resulted in very good subsequent growth. The bulk of clover was sold at 2/9 per load.

**Cumin.** There has been a noticeable increase in the cultivation of cumin during the last two years. This year it was grown on an area of 1,931 acres with an estimated yield of 6,320 cwts., the corresponding figures for the preceding year being 1,712 acres with an estimated yield of 9,557 cwts. The increase in the cultivation is due to the good local market prices resulting from an increased demand from abroad. It is to be noted that despite an increased acreage the production showed a decrease. Very little rain fell after most of the cumin was sown and the lack of late showers resulted in generally small yields. The average price for the cumin-seed was £2. 10. 0 per qantar (£1. 10. 0 per cwt.).

**Cotton.** Farmers have almost ceased to cultivate cotton. The area grown this year was only 34 acres ; 14 acres being planted in Malta and 20 acres in Gozo, the lowest figures ever recorded. The yield was estimated at 7,910 lbs. of lint and 312 cwts. of cotton seed. Lately 263 cwts. of lint have been sold for export at the price of 4/6 per pesa i.e. £2. 17. 6 per cwt.

**Grapes.** The total area under vineyards was estimated at 1,577 acres against last year's figure of 1,329 acres, viz :— 543 acres in Malta and 1,034 acres in Gozo, showing an increase of 248 acres. This year's crop of grapes was estimated at 84,574 cwts. as compared with 67,445 cwts. in the preceding year. The produce of wine is estimated at 60,000 barili or 570,000 Imperial Gallons, and not less than 65,000 barili as second wine, illegal. The average price of grapes was 10s. per qantar in Gozo and 12s. in Malta.

**Citrus Fruits.** The area under citrus fruits has remained the same as last year, namely 193 acres. The yield was estimated at 130,230 dozen, as against 194,830 dozen in 1934.

**Other Fruits.** Other fruits were grown on an area of 1,120 acres a decrease of 332 acres on last year's acreage. Fruit trees are being destroyed to make room for the planting of vineyards. The production was estimated at 74,261 cwts. as compared with 88,885 cwts. in the preceding year.

**Tobacco.** Returns on the cultivation of tobacco in Malta and Gozo have this year been compiled showing an area of 7½ acres in Malta and 16 acres in Gozo, a total of 23½ acres. Tobacco, which is grown under irrigation, is generally planted in December, transplanted in February and harvested twice in May and July. The yield was estimated at 132 cwts. Farmers are not well acquainted with the methods of cultivation and curing of tobacco, and consequently its cultivation has been restricted. About six years ago tobacco was grown on a larger area and the produce was sold at £17 per qantar, but now the price has fallen to £4 per qantar.

The agricultural year 1934-35 was fairly good since the higher prices obtained more than compensated for the generally low yields.

### 3. Tables.

Tables IV, V, VI and VII show respectively—

a) Area of various crops;
b) Estimated quantities of agricultural produce;
c) Estimated values of agricultural produce;
d) Average prices of agricultural produce.

### 4. Animals.

Enumeration of livestock and farm animals has continued to be made in terms of Government Notice No. 194 of the 15th July, 1921, as amended by Government Notice No. 118 of the 25th May, 1933. Returns collected on the 31st December, 1934, are shown in Table VIII. As already stated in my previous report, these returns are not very reliable. An Ordinance to facilitate the collection and compilation of more dependable agricultural statistics was enacted on the 8th January, 1935, but so far it was not possible to make much use of that Ordinance, for want of adequate funds.

**Cattle.** Of the 4,020 head of cattle, 1,389 were returned for Gozo and 2,631 for Malta, as compared with 1,141 and 2,771 for the previous year.

Maltese cattle are poor milkers and yield inferior beef. Over 80% of the beef consumed in these Islands is obtained from store bullocks imported from abroad, and fattened locally. The number of bullocks so imported during the year was 17,077, of which only 2,403 were fat ready for slaughter, and 14,674 were lean, requiring at least three months local fattening.

The number of cattle slaughtered at the Civil Abattoirs amounted to 17,744 of which 875 head were of Maltese breeds.

**Pigs.** The number of pigs returned was 6,565 of which 4,871 were in Malta and 1,694 in Gozo. Pigs slaughtered in the Civil Abattoirs numbered 20,125, of which 18,206 were bred locally, and the remaining 1,919 imported. The importation of swine has been prohibited by the Importation of Swine Restriction Order of the 8th February, 1935.

**Sheep.** The return for sheep gave 16,125 head, of which 10,060 were in Malta and 6,065 in Gozo, as against 11,148 and 8,474 for the previous year.

**Goats.** The number of goats returned was 31,559 namely 20,611 for Malta and 10,948 for Gozo, as compared with 20,697 and 7,711 for the previous year. The real goat population is over 50,000.

**Draught Animals.** The number of horses, mules and donkeys reported for the year was respectively 2,444, 2,925 and 3,412 as against 3,051, 3,092 and 4,196 for the previous year. The number of draught animals has continued to decrease owing to the increasing volume of motor transport.

**Poultry.** The poultry population of Malta and Gozo has been estimated at 750,000 head and the annual production of eggs at 5,625,000 dozen worth £220,000 all consumed locally. Small quantities of eggs are imported during the autumn months. The importation of eggs for the last seven years is given in Table IX.

### 5. Exports of Agricultural Produce.

The value of field and farm produce during the year was estimated at about £1,200,000 consisting chiefly of potatoes (£156,590), other fruits, including melons (£48,940), vegetables (£66,000), forage crops (£123,650), meat (£281,000) and eggs (£220,000), wine (£46,550). Of these £137,412 worth were exported. Comparative values of exports of agricultural produce and manufactured goods for the last seven years are shown in graphic form in table X.

The principal agricultural exports for the year under review were as follows:—

**Potatoes.** The quantity exported was 12,313 tons valued £105,370 as against 10,170 tons worth £79,368 for the previous year. Of this quantity 71% went to Holland, over 9% to the United Kingdom and 8% to Belgium.

**Onions.** The quantities exported were 30,109 cwts. valued £3,744, of which over 50% went to Holland, 20% to Sweden, 8% to Lybia and about 6% to the United Kingdom.

**Cumin Seed.** Cumin seed exports were represented by 5,004 cwts. valued £11,667. The chief markets were Germany, Brazil, Holland, Chile and the U.S.A.

**Cotton.** The export of cotton has now been reduced to vanishing point. Only 196 cwt of cotton worth £490 were exported, all to the United Kingdom.

**Citrus Fruits.** The export of oranges and mandarines amounted to 2,477 dozen, valued £150 going mostly to the United Kingdom and to Tunis.

**Tallow.** Shipments amounted to 4,581 cwts. valued £4,297 mostly to Italy.

**Hides and Skins.** Exports amounted to 5,614 cwts. mostly hides, valued £9,592. Skins are now being tanned in Malta. Over 50% went to Italy and 35% to Greece.

**Bran.** Shipments amounted to 3,006 cwts. valued £736 mostly to the United Kingdom.

**Other Exports.** Other agricultural exports were: preserved fruits (£584), squills (£114), honey (£40), cheese (£27), peeled tomatoes (£1,025), tomato extracts (£300), other vegetables (£52) and goats (£40).

Other particulars are given in Appendix (V) and Table XI.

TABLE I.

## COMPARATIVE STATEMENT OF EXPENDITURE FOR THE YEARS 1933-34 AND 1934-35.

| | 1933-34 | 1934-35 |
|---|---|---|
| A. *Personal Emoluments.* | | |
| Office | £ 1,641 0 5 | £ 1,298 12 6 |
| Experimental Farm | 713 6 8 | 914 18 3 |
| Gardens and Plantations | 5,392 4 1 | 5,494 0 8 |
| Plant Pathology | 644 13 4 | 625 1 2 |
| Viticulture and Oenology | 644 19 11 | 827 9 6 |
| | £ 9,056 4 5 | £ 9,187 2 1 |
| B. *Other Charges.* | | |
| Office | £ 1,040 11 6 | £ 1,663 2 5 |
| Experimental Farms | 1,423 7 2 | 2,334 7 4 |
| Gardens and Plantations | 3,844 8 2 | 3,846 9 10 |
| Plant Pathology | 463 4 3 | 546 2 — |
| Viticulture and Oenology | 716 6 1 | 911 10 9 |
| Animal Husbandry | 1,178 11 11 | 452 5 9 |
| | £ 8,865 18 0 | £ 9,753 18 1 |
| *Subsidies:* | | |
| Società Economico Agraria | 225 0 0 | 225 0 0 |
| Board of Agriculture — Gozo | 200 0 0 | 200 0 0 |
| Malta Horticultural Society | 80 0 0 | 80 0 0 |
| Malta Horse Show | 50 0 0 | 50 0 0 |
| Bee-keepers | 24 7 6 | 52 4 6 |
| Imperial Bureau of Agriculture, Entomology and Mycology | 64 0 0 | 119 0 0 |
| Colonial Agricultural Service Fund | — — — | 25 0 0 |
| | £ 9,309 16 7 | £10,505 2 7 |
| *Extraordinary Expenditure* | 687 4 4 | 4,220 19 3 |
| | £19,053 5 4 | £23,913 3 11 |

TABLE II.

## COMPARATIVE STATEMENT OF REVENUE FOR THE YEARS 1933-34 AND 1934-35.

| | 1933-34 | 1934-35 |
|---|---|---|
| Sale of vegetables from Experimental Farm | £ 484 7 4 | £ 602 4 4 |
| Sale of livestock and eggs | — | 98 19 11 |
| Sale of trees, plants, etc., from public plantations | 331 0 2¼ | 317 18 1¾ |
| Sale of fruit, etc., from San Antonio and Buskett Gardens | 503 9 9 | 494 19 4 |
| Sale of chemicals, hire of spraying pumps, etc. | 10 13 2 | 19 1 1 |
| Inspection of agricultural produce, etc. | 319 16 4 | 475 5 5 |
| Certificates | 124 15 0 | 136 11 6 |
| Miscellaneous | 25 5 5 | 73 17 0 |
| Contributions under the Widows and Orphans Pensions Act, 1927 | 112 1 8 | 117 12 1 |
| | £1,911 8 10¼ | £2,336 8 9¾ |

# TABLE III.

Table showing the monthly and total rainfall (in inches) for the year 1934-35 as compared with 1933-34.

| Town or village | Sept 1934 | Oct. 1934 | Nov. 1934 | Dec. 1934 | Jan. 1935 | Feb. 1935 | March 1935 | April 1935 | May 1935 | June 1935 | Total Sept.-June 1934-35 | Total Sept.-June 1933-34 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ins. | ins. | ins | ins. | ins. | ins. | ins. | ins. | ins. | ins. | ins. | ins. |
| MALTA | | | | | | | | | | | | |
| Naxxar ... ... ... | 1·60 | 5·32 | 9 66 | 5·65 | 6·57 | 1·60 | 7·61 | 0·22 | ... | ... | 38·23 | 20·09 |
| Mosta ... ... ... | 1·92 | 5·22 | 9·84 | 4·60 | 5·49 | 0·80 | 5 97 | ... | ... | .. | 33·84 | 21·80 |
| Notabile ... ... | 2 35 | 4·44 | 6·65 | 6·84 | 5·92 | 1·08 | 6·34 | 0·17 | ... | ... | 33·79 | 19·06 |
| Gharghur ... ... ... | 1·05 | 5 10 | 9·76 | 4·01 | 5·02 | 1 27 | 6 57 | 0 17 | ... | ... | 33·55 | 17 95 |
| Birkirkara ... ... ... | 2·03 | 3·06 | 6·31 | 6·74 | 6·76 | 1·17 | 6·44 | 0·15 | ... | ... | 32·66 | 18·36 |
| Lija ... ... ... ... | 2·38 | 4·36 | 6·83 | 6 85 | 5·48 | 0·91 | 5·42 | 0·15 | ... | ... | 32·38 | 19·69 |
| Msida ... ... ... | 1·22 | 3·17 | 6·70 | 4·05 | 7 81 | 1·89 | 6·95 | 0·24 | ... | ... | 32·03 | 19·52 |
| Mqabba ... ... ... | 0·30 | 3·48 | 8 41 | 5·08 | 7 65 | 0 63 | 5·98 | 0·18 | ... | ... | 31·71 | 24·87 |
| Mellieha ... ... ... | 2·69 | 5·37 | 5·93 | 4·89 | 5·86 | 1·26 | 5 18 | 0·06 | ... | ... | 31·24 | 17·23 |
| San Antonio Gardens ... ... | 1·85 | 3·98 | 6·17 | 6 61 | 5·58 | 0·91 | 5·27 | 0·13 | ... | ... | 30·50 | ... |
| St. Paul's Bay ... ... | 2·90 | 5·24 | 6 14 | 3·69 | 5·17 | 1 55 | 4·49 | 0·16 | ... | ... | 29·34 | 17·67 |
| Boschetto Gardens ... ... | 2·19 | 3·88 | 6 08 | 5·44 | 5 20 | 1·26 | 4 81 | 0·10 | ... | ... | 28·96 | ... |
| Żebbuġ ... ... ... | 1·31 | 3·50 | 6·12 | 6·05 | 5·97 | 0 86 | 4·93 | 0·18 | ... | ... | 28·92 | 19·02 |
| Qrendi ... ... ... | 0·16 | 3·18 | 8·29 | 3·73 | 6 00 | 1 12 | 6·22 | ... | ... | ... | 28·70 | 20·80 |
| Siġġiewi ... ... ... | 0·70 | 3·12 | 7 17 | 4·32 | 6·36 | 0 81 | 5·11 | 0·19 | ... | ... | 27·78 | 18·39 |
| Żurrieq ... ... ... | 0·31 | 3·39 | 5·01 | 6 24 | 5·58 | 0·61 | 6·30 | 0·19 | ... | ... | 27·63 | 21·18 |
| Sliema ... ... ... | 1·35 | 4·42 | 6·27 | 4·38 | 5 96 | 1 34 | 3·59 | 0·28 | .. | ... | 27·59 | 17·77 |
| Qormi ... ... ... | 0·83 | 1 95 | 8·30 | 3 18 | 6·02 | 0·91 | 6·30 | ... | ... | ... | 27·49 | 20·30 |
| Gudja ... ... ... | 0·24 | 1·06 | 2·53 | 7·83 | 5·79 | 0·52 | 4 91 | 0 08 | ... | ... | 25·96 | 19·35 |
| Vittoriosa ... ... ... | 1·30 | 3·17 | 5 81 | 4 32 | 5·99 | 0 83 | 3 87 | 0·16 | ... | ... | 25·45 | 19 83 |
| Floriana ... ... ... | 1·16 | 2 64 | 5 09 | 4·39 | 5·23 | 0·85 | 4·97 | 0·16 | ... | ... | 24·49 | 18·91 |
| Ghaxaq ... ... ... | 0·43 | 3·93 | 2·56 | 6·55 | 5·20 | 0 67 | 4·43 | 0·12 | ... | ... | 23·89 | 19·65 |
| Żejtun ... ... ... | 0·46 | 3·39 | 3·13 | 6·25 | 5 67 | 1·03 | 5·77 | 0·10 | ... | ... | 23·80 | 19·10 |
| Luqa ... ... ... ... | 0·46 | 2·86 | 4·77 | 4 73 | 5·35 | 0 54 | 4·76 | 0·24 | ... | ... | 23·71 | 19·89 |
| Hamrun ... ... ... | 1·20 | 2·36 | 6·58 | 3·86 | 4·24 | 0·74 | 4 60 | 0·13 | ... | ... | 23·71 | 15·41 |
| Dingli ... ... ... | 1·20 | 3·11 | 7·00 | 4·17 | 4 88 | 0·92 | 1·44 | ... | ... | ... | 22·72 | 14·06 |
| Cospicua ... ... ... | 0·75 | 3·05 | 3 79 | 5 48 | 5·16 | 1·07 | 3 60 | 0·07 | ... | ... | 22·47 | 17·23 |
| Tarxien ... ... ... | 0·71 | 2·95 | 4·18 | 4·12 | 5·48 | 0·69 | 4·14 | 0·09 | ... | ... | 22 36 | 19·39 |
| Valletta ... ... ... | 1·64 | 3·09 | 3·48 | 5·71 | 5·63 | ... | ... | ... | ... | ... | 19·55 | 18·00 |
| Birżebbuġa ... ... ... | 0·70 | 2·46 | 1·02 | 5·74 | 5 93 | 1·00 | 2·65 | .. | .. | ... | 19·50 | 16·40 |
| Zabbar ... ... ... | ... | ... | ... | ... | 5·65 | 1·09 | 5·02 | ... | ... | ... | 11·76 | ... |
| Senglea ... ... ... | ... | ... | ... | ... | ... | 0·51 | 3·01 | 0 06 | ... | ... | 3·68 | 14·37 |
| Mean ... ... .. | 1·19 | 3·41 | 5 64 | 4·86 | 5·58 | 0 95 | 4·77 | 0·11 | .... | ... | 26·54 | ... |
| Corresponding mean last year ... | 0·04 | 0 17 | 3 72 | 4·95 | 5·49 | 1·14 | 1·74 | 0·49 | 0·99 | 0·04 | ... | 18·81 |
| Gozo | | | | | | | | | | | | |
| Ghainsielem ... ... ... ... | 1·42 | 5·79 | 5 60 | 4·77 | 6 81 | 1·02 | 5·11 | 0·03 | ... | ... | 30·55 | 19 95 |
| Nadur ... ... ... | 1·10 | 5·77 | 3·94 | 5·85 | 6·34 | 1·20 | 5·64 | 0·06 | ... | ... | 29·90 | 17 49 |
| Sannat ... ... ... | 2·00 | 5·78 | 4 35 | 5·08 | 6·82 | 1·22 | 4·52 | 0·11 | ... | ... | 29·88 | 28·00 |
| Qala... ... ... ... | 1·14 | 6 54 | 4 96 | 4·65 | 6·33 | 1·26 | 4·92 | 0·06 | ... | ... | 29·86 | 16 95 |
| Victoria ... ... ... | 2·04 | 4·79 | 3·97 | 5·70 | 5 92 | 0·99 | 5·75 | 0·07 | ... | ... | 29·23 | 22·52 |
| Żebbuġ ... ... ... | 1·37 | 6 47 | 2·16 | 6 03 | 6 26 | 1·34 | 5·45 | 0 04 | ... | ... | 29 12 | 24 78 |
| Xaghra ... ... ... | 0·96 | 5·66 | 4 74 | 5 62 | 6·33 | 1·40 | 3·97 | ... | ... | ... | 28·18 | 22·20 |
| Xewkija ... ... ... | 1 60 | 5·65 | 4·42 | 4·43 | 6 00 | 1·10 | 3·90 | 0·02 | ... | ... | 27 17 | 23·52 |
| Gharb ... ... | 1·64 | 4·79 | 2·87 | 4·77 | 5 92 | 1·44 | 4·27 | ... | ... | ... | 25·70 | 21·37 |
| Comino ... ... ... | 0 90 | 4·19 | 4 05 | 4 37 | 4·78 | 0·76 | 3·50 | ... | ... | ... | 22·55 | 14·27 |
| Mean ... ... ... | 1·41 | 5·54 | 4 05 | 5·12 | 6·15 | 1·17 | 4·70 | 0·03 | ... | ... | 28·21 | ... |
| Corresponding mean last year ... | 0·11 | 0.26 | 7·82 | 2·55 | 4·93 | 1·34 | 1 89 | 0 82 | 0·43 | 0·81 | ... | 21·10 |
| Mean for Malta, Gozo and Comino | 1·30 | 4·47 | 4·84 | 4·99 | 5·86 | 1·06 | 4·73 | 0·07 | ... | ... | 27·37 | ... |
| Corresponding mean last year ... | 0 06 | 0 19 | 4·78 | 4·35 | 5 35 | 1·19 | 1·78 | 0·58 | 0 84 | 0·23 | ... | 19·39 |

TABLE IV.

## Area of the various crops 1934-35.

| | Locality | Nature of the crop and number of acres of land in each crop. | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Wheat | Barley | Beans | Vetches | Potatoes | Onions | Cumin | Citrus fruits | Vines | Other fruits | Vegetables | Forages | Pasture | Total No. of acres in crop | No. of acres of uncultivated land |
| Valletta Dist. | Valletta ... ... | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| | Floriana ... ... | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| | Hamrun & Marsa ... | 43 | 15 | 15 | 7 | 29 | 1 | 11 | 1 | — | 7 | 51 | 86 | 2 | 268 | 26 |
| | Msida & Pietà ... | 16 | 10 | 3 | 8 | 25 | 1 | 7 | 2 | — | 3 | 2 | 43 | 1 | 141 | 3 |
| | Sliema ... ... ... | 13 | — | 1 | 5 | 11 | — | 3 | 1 | — | 2 | — | 19 | 1 | 56 | 2 |
| | St. Julians ... ... | 48 | 13 | 9 | 17 | 44 | 1 | 7 | 2 | 1 | 7 | 2 | 79 | 2 | 232 | 10 |
| Total Valletta District ... | | 140 | 38 | 28 | 37 | 109 | 3 | 28 | 6 | 1 | 19 | 55 | 227 | 6 | 697 | 41 |
| East District | Senglea ... ... | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| | Cospicua ... ... | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| | Vittoriosa ... ... | 1 | 1 | — | — | 2 | — | — | — | — | 2 | 3 | 3 | — | 12 | 3 |
| | Żabbar & Kalkara ... | 131 | 156 | 131 | 87 | 190 | 61 | 81 | 3 | 3 | 26 | 135 | 287 | 23 | 1,314 | 49 |
| | Żejtun ... ... ... | 159 | 179 | 108 | 96 | 193 | 74 | 114 | 4 | 2 | 13 | 83 | 281 | 11 | 1,317 | 20 |
| | Marsaxlokk ... ... | 104 | 107 | 33 | 19 | 95 | 67 | 58 | — | 3 | 14 | 14 | 216 | 14 | 744 | 24 |
| | Tarxien & Pawla ... | 108 | 98 | 32 | 26 | 133 | 42 | 64 | 3 | 13 | 20 | 12 | 298 | 3 | 852 | 12 |
| | Luqa ... ... ... | 147 | 96 | 54 | 18 | 115 | 36 | 91 | 4 | 4 | 28 | 10 | 289 | 4 | 896 | 24 |
| | Mqabba ... ... | 114 | 81 | 7 | 14 | 71 | 6 | 13 | 2 | 5 | 54 | — | 136 | 8 | 511 | 18 |
| | Qrendi ... ... ... | 158 | 109 | 12 | 26 | 104 | 16 | 14 | 2 | 3 | 35 | — | 191 | 20 | 690 | 90 |
| | Żurrieq & Safi ... | 513 | 341 | 19 | 48 | 215 | 19 | 34 | 5 | 10 | 42 | — | 446 | 32 | 1,724 | 69 |
| | Gudja & Kirkop ... | 174 | 95 | 45 | 25 | 154 | 36 | 88 | 2 | 5 | 21 | 7 | 258 | 18 | 928 | 42 |
| | Birżebbuġa ... ... | 179 | 146 | 42 | 36 | 209 | 92 | 97 | 1 | 15 | 19 | 25 | 324 | 46 | 1,231 | 80 |
| | Għaxaq ... ... | 111 | 70 | 33 | 23 | 96 | 57 | 45 | 1 | 2 | 12 | 10 | 176 | 10 | 646 | 48 |
| Total East District ... | | 1,899 | 1,479 | 516 | 418 | 1,577 | 506 | 699 | 27 | 65 | 286 | 299 | 2,905 | 189 | 10,865 | 479 |
| Central District | Naxxar Central ... | 323 | 105 | 11 | 77 | 219 | 2 | 67 | 3 | 4 | 32 | 12 | 290 | 20 | 1,265 | 400 |
| | Birkirkara and Sta. Venera | 366 | 71 | 28 | 92 | 361 | 10 | 106 | 7 | 5 | 41 | 16 | 443 | 13 | 1,559 | 54 |
| | Għargħur ... ... | 165 | 64 | 10 | 48 | 97 | 2 | 46 | 1 | 4 | 27 | 20 | 202 | 22 | 708 | 240 |
| | Mosta ... ... ... | 104 | 22 | 4 | 19 | 106 | 2 | 38 | 10 | 5 | 16 | 3 | 127 | 19 | 475 | 75 |
| | Lija & Balzan... ... | 80 | 13 | 7 | 14 | 128 | 1 | 41 | 30 | 2 | 18 | 5 | 132 | — | 471 | 5 |
| | Attard ... ... ... | 221 | 52 | 14 | 45 | 151 | 2 | 74 | 17 | 11 | 10 | 16 | 256 | 2 | 871 | 24 |
| | Żebbuġ... ... ... | 179 | 46 | 53 | 32 | 195 | 54 | 204 | 12 | 11 | 36 | 226 | 304 | 6 | 1,358 | 21 |
| | Qormi ... ... ... | 161 | 67 | 49 | 46 | 214 | 19 | 32 | 10 | 5 | 45 | 271 | 314 | 14 | 1,247 | 18 |
| Total Central District ... | | 1,599 | 440 | 176 | 373 | 1,471 | 92 | 608 | 90 | 47 | 225 | 569 | 2,168 | 96 | 7,954 | 837 |
| West District | Notabile ... ... | 366 | 16 | 32 | 94 | 74 | 16 | 28 | 1 | 38 | 18 | 86 | 317 | 10 | 1,096 | 6 |
| | Rabat ... ... ... | 823 | 81 | 140 | 278 | 290 | 98 | 35 | 6 | 146 | 42 | 291 | 540 | 20 | 2,790 | 343 |
| | Dingli ... ... ... | 224 | 48 | 46 | 96 | 85 | 35 | 10 | 2 | 47 | 25 | 80 | 154 | 23 | 875 | 210 |
| | Siġġiewi ... ... | 413 | 102 | 120 | 221 | 206 | 131 | 214 | 40 | 28 | 34 | 266 | 412 | 66 | 2,253 | 292 |
| | Mġarr ... ... ... | 621 | 246 | 33 | 195 | 231 | 20 | 132 | 1 | 57 | 30 | 18 | 536 | 98 | 2,218 | 172 |
| | Mellieħa ... ... | 719 | 54 | 128 | 326 | 194 | 13 | 1 | 2 | 70 | 55 | 253 | 364 | 43 | 2,232 | 216 |
| | St. Paul's Bay ... | 635 | 61 | 84 | 51 | 273 | 10 | 8 | 2 | 36 | 30 | 107 | 545 | 28 | 1,870 | 115 |
| | Naxxar, West... ... | 136 | 53 | 7 | 36 | 56 | 3 | 31 | 1 | 8 | 25 | 2 | 138 | 10 | 506 | 347 |
| Total West District ... | | 3,937 | 661 | 600 | 1,297 | 1,409 | 326 | 459 | 55 | 430 | 259 | 1,103 | 3,006 | 298 | 13,840 | 1,701 |
| Total Malta ... ... | | 7,575 | 2,618 | 1,320 | 2,125 | 4,566 | 927 | 1794 | 178 | 543 | 789 | 2,026 | 8,306 | 589 | 33,356 | 3,058 |
| Gozo | Victoria (Gran Fontana) | 144 | 198 | 29 | 28 | 31 | 1 | 17 | 1 | 120 | 26 | 34 | 245 | 6 | 880 | 24 |
| | Kirċem ... ... | 156 | 214 | 35 | 32 | 44 | — | 21 | 1 | 96 | 20 | 18 | 211 | 18 | 866 | 27 |
| | San Lawrenz ... ... | 131 | 146 | 28 | 8 | 15 | — | 4 | — | 28 | 8 | 4 | 171 | 11 | 554 | 27 |
| | Għarb & Għasri ... | 212 | 249 | 53 | 30 | 68 | 3 | 13 | — | 62 | 20 | 20 | 234 | 16 | 980 | 106 |
| | Żebbuġ... ... ... | 188 | 283 | 74 | 57 | 32 | — | — | 2 | 82 | 55 | 4 | 451 | 12 | 1,240 | 25 |
| | Xagħra... ... ... | 176 | 185 | 70 | 62 | 47 | — | — | 6 | 152 | 40 | 22 | 283 | 32 | 1,075 | 38 |
| | Nadur ... ... ... | 170 | 205 | 80 | 64 | 19 | — | — | 4 | 233 | 60 | 36 | 256 | 45 | 1,172 | 56 |
| | Qala ... ... ... | 133 | 170 | 37 | 29 | 11 | 1 | — | — | 159 | 52 | 15 | 155 | 8 | 770 | 30 |
| | Għajnsielem & Kemmuna | 157 | 212 | 43 | 21 | 40 | — | 12 | 1 | 37 | 23 | 9 | 275 | 40 | 870 | 76 |
| | Xewkija ... ... | 76 | 59 | 20 | 25 | 23 | 4 | 14 | — | 38 | 9 | — | 83 | 45 | 396 | 80 |
| | Sannat & Munxar ... | 202 | 180 | 41 | 40 | 38 | 8 | 56 | — | 27 | 18 | — | 236 | 98 | 944 | 94 |
| Total, Gozo... ... ... | | 1,745 | 2,101 | 510 | 396 | 368 | 17 | 137 | 15 | 1034 | 331 | 162 | 2,600 | 331 | 9,747 | 593 |
| Grand total ... ... | | 9,320 | 4,719 | 1,830 | 2,521 | 4,934 | 944 | 1931 | 193 | 1577 | 1,120 | 2,188 | 10,906 | 920 | 43,103 | 3,651 |

TABLE V.

Estimated Quantities of Agricultural Produce—1934-35.

| | Locality | Nature of produce and quantity of each | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Wheat Quarters | Barley Quarters | Beans Quarters | Vetches-seed Quarters | Potatoes Tons | Onions Tons | Cumin-seed Cwts | Citrus fruits Dozen | Grapes Cwts. | Other fruits Cwts. | Vegetables Cwts. | Forages 'Soma' or load of 10 bundles |
| Valletta Dist. | Valletta | — | — | — | — | — | — | — | — | — | — | — | — |
| | Floriana | — | — | — | — | — | — | — | — | — | — | — | — |
| | Hamrun & Marsa | 97 | 56 | 57 | 13 | 65 | 5 | 35 | 700 | — | 434 | 3,575 | 5,250 |
| | Msida & Pietà | 81 | 37 | 11 | 15 | 56 | 4 | 22 | 1,350 | — | 186 | 140 | 2,640 |
| | Sliema | 29 | — | 3 | 9 | 25 | — | 10 | 650 | — | 58 | — | 1,155 |
| | St. Julians | 108 | 49 | 34 | 32 | 99 | 5 | 21 | 1,320 | 45 | 437 | 133 | 4,810 |
| Total Valletta District | | 315 | 142 | 105 | 69 | 245 | 14 | 88 | 4,030 | 45 | 1,115 | 3,848 | 13,855 |
| East District | Senglea | — | — | — | — | — | — | — | — | — | — | — | — |
| | Cospicua | — | — | — | — | — | — | — | — | — | — | — | — |
| | Vittoriosa | 2 | 3 | — | — | 4 | — | — | — | — | 125 | 210 | 180 |
| | Zabbar & Kalkara | 295 | 585 | 491 | 164 | 428 | 295 | 263 | 2,100 | 136 | 1,612 | 8,775 | 18,510 |
| | Żejtun | 358 | 671 | 405 | 182 | 434 | 356 | 350 | 2,800 | 90 | 806 | 5,395 | 17,940 |
| | Marsaxlokk | 234 | 401 | 124 | 38 | 214 | 320 | 180 | — | 135 | 868 | 910 | 13,900 |
| | Tarxien & Pawla | 243 | 367 | 120 | 50 | 209 | 198 | 192 | 2,000 | 544 | 1,240 | 780 | 19,395 |
| | Luqa | 331 | 360 | 202 | 36 | 259 | 166 | 275 | 2,700 | 181 | 1,736 | 650 | 18,720 |
| | Mqabba | 257 | 304 | 26 | 27 | 160 | 29 | 42 | 1,400 | 227 | 3,348 | — | 8,795 |
| | Qrendi | 358 | 409 | 45 | 48 | 234 | 74 | 45 | 1,350 | 136 | 2,170 | — | 12,260 |
| | Żurrieq & Safi | 1,154 | 1,278 | 71 | 95 | 484 | 90 | 110 | 3,500 | 453 | 2,604 | — | 28,560 |
| | Gudja & Kirkop | 392 | 356 | 169 | 49 | 347 | 168 | 276 | 1,400 | 228 | 1,302 | 455 | 17,735 |
| | Birzebbuga | 403 | 547 | 157 | 72 | 470 | 442 | 291 | 600 | 680 | 1,178 | 1,625 | 20,695 |
| | Għaxaq | 250 | 262 | 123 | 43 | 216 | 275 | 140 | 700 | 90 | 744 | 630 | 11,275 |
| Total East District | | 4,277 | 5,543 | 1,933 | 804 | 3,549 | 2,413 | 2,164 | 18,550 | 2,900 | 17,733 | 19,430 | 187,965 |
| Central District | Naxxar Central | 787 | 394 | 41 | 144 | 493 | 10 | 234 | 1,900 | 181 | 2,016 | 840 | 25,370 |
| | Birkirkara and Santa Vennera | 824 | 266 | 105 | 176 | 812 | 48 | 371 | 4,800 | 227 | 2,542 | 1,120 | 28,760 |
| | Għargħur | 412 | 240 | 37 | 90 | 218 | 9 | 161 | 550 | 180 | 1,701 | 1,400 | 13,145 |
| | Mosta | 260 | 80 | 16 | 35 | 239 | 10 | 133 | 7,000 | 228 | 1,008 | 210 | 8,285 |
| | Lija & Balzan | 190 | 49 | 26 | 24 | 288 | 6 | 143 | 21,000 | 91 | 1,116 | 350 | 8,605 |
| | Attard | 498 | 195 | 52 | 70 | 340 | 11 | 259 | 11,900 | 453 | 610 | 1,125 | 16,670 |
| | Żebbug | 403 | 172 | 199 | 58 | 439 | 260 | 714 | 8,400 | 499 | 2,232 | 15,820 | 19,855 |
| | Qormi | 362 | 251 | 184 | 73 | 482 | 92 | 112 | 7,000 | 228 | 2,790 | 18,970 | 20,545 |
| Total Central District | | 3,736 | 1,647 | 660 | 670 | 3,311 | 446 | 2,127 | 62,550 | 2,087 | 14,015 | 39,835 | 141,235 |
| West District | Mdina | 902 | 68 | 120 | 172 | 167 | 75 | 91 | 500 | 1,632 | 1,260 | 6,920 | 20 670 |
| | Rabat | 2,056 | 304 | 525 | 510 | 652 | 480 | 114 | 4,000 | 6,256 | 2,940 | 20,370 | 35,390 |
| | Dingli | 523 | 180 | 173 | 166 | 191 | 171 | 32 | 950 | 1,904 | 1,750 | 5,600 | 9,965 |
| | Siġġiewi | 930 | 383 | 450 | 424 | 463 | 655 | 696 | 28,000 | 1,133 | 2,380 | 18,620 | 26,630 |
| | Mġarr | 1,552 | 923 | 124 | 371 | 520 | 94 | 429 | 300 | 2,493 | 2,105 | 1,260 | 34,780 |
| | Mellieħa | 1,797 | 205 | 518 | 643 | 436 | 63 | 3 | 750 | 2,947 | 3,850 | 17,710 | 23,070 |
| | St. Paul's Bay | 1,587 | 229 | 315 | 92 | 614 | 48 | 30 | 800 | 1,360 | 2,150 | 7,490 | 35,035 |
| | Naxxar, West | 340 | 201 | 27 | 65 | 126 | 12 | 101 | 450 | 317 | 1,753 | 140 | 8,915 |
| Total West District | | 9,687 | 2,493 | 2,252 | 2,443 | 3,169 | 1,598 | 1,496 | 35,750 | 18,042 | 18,188 | 77,210 | 194,455 |
| Total Malta | | 18,015 | 9,825 | 4,950 | 3,986 | 10,274 | 4,471 | 5,875 | 120,880 | 23,074 | 51,051 | 140,323 | 537,510 |
| Gozo | Victoria (Gran Fontana) | 360 | 613 | 109 | 52 | 70 | 5 | 55 | 600 | 7,500 | 1,825 | 2,210 | 15 910 |
| | Kerċem | 391 | 679 | 132 | 60 | 99 | — | 68 | 550 | 4,950 | 1,402 | 1,170 | 13,685 |
| | San Lawrenz | 328 | 452 | 105 | 13 | 34 | — | 13 | — | 1,350 | 564 | 260 | 11,105 |
| | Għarb & Għasri | 533 | 781 | 199 | 58 | 153 | 14 | 42 | — | 2,700 | 1,408 | 1,300 | 15,185 |
| | Żebbug | 472 | 863 | 278 | 106 | 72 | — | — | 1,250 | 5,100 | 3,850 | 265 | 29,295 |
| | Xagħra | 444 | 575 | 263 | 121 | 106 | — | — | 3,800 | 8,775 | 2,803 | 1,430 | 18,420 |
| | Nadur | 425 | 646 | 300 | 124 | 43 | — | — | 2,500 | 15,225 | 4,200 | 2,340 | 16,620 |
| | Qala | 332 | 530 | 139 | 55 | 27 | 6 | — | — | 10,050 | 3,645 | 975 | 10,180 |
| | Għajnsielem & Kemmuna | 396 | 662 | 161 | 42 | 90 | — | 39 | 650 | 2,400 | 1,615 | 585 | 17,915 |
| | Xewkija | 190 | 190 | 75 | 48 | 51 | 17 | 46 | — | 2,175 | 638 | — | 5,395 |
| | Sannat & Munxar | 505 | 559 | 154 | 76 | 85 | 48 | 182 | — | 1 275 | 1.260 | — | 15.350 |
| Total, Gozo | | 4,376 | 6,550 | 1,915 | 755 | 830 | 90 | 445 | 9,350 | 61,500 | 23,210 | 10,595 | 169,060 |
| Grand total | | 22,391 | 16,375 | 6,865 | 4,741 | 11,104 | 4,561 | 6,320 | 130,230 | 84,574 | 74,261 | 150,858 | 706,570 |

TABLE VI.

Estimated values of Agricultural Produce grown in these Islands during 1933-34 and 1934-35.

| | 1933-1934 | | | | | | | | 1934-1935 | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | £ | s. | d. | | £ s. d. | | | | £ | s. | d. | | £ s. d. |
| Wheat ... ... ... ... | 38,800 | qrs. | @ | 1 | 16 | 8 | = | 71,133 6 8 | 22,391 | qrs. | @ | 1 | 18 | 4 | = | 42,916 1 8 |
| Meslin or "Mischiato" ... ... | 9,657 | ,, | ,, | 1 | 6 | 8 | = | 12,876 0 0 | 0,096 | ,, | ,, | 1 | 5 | 0 | = | 7,620 0 0 |
| Barley ... ... ... ... | 18,953 | ,, | ,, | | 18 | 4 | = | 17,373 11 8 | 10,279 | ,, | ,, | 1 | 1 | 8 | = | 11,135 11 8 |
| Straw (Wheat and Meslin) ... | 335,840 | nets | ,, | | 2 | 6 | = | 41,980 0 0 | 320,500 | nets | ,, | | 2 | 3 | = | 36,056 5 0 |
| Straw (Barley) ... ... ... | 538,812 | "some" | ,, | | | 10 | = | 22,450 10 0 | 290,400 | "some" | ,, | | 1 | 6 | = | 21,780 0 0 |
| Beans ... ... ... ... | 11,084 | qrs. | ,, | 1 | 15 | 0 | = | 19,597 0 0 | 6,865 | qrs. | ,, | 2 | 5 | 0 | = | 15,445 5 0 |
| Vetches ... ... ... ... | 9,084 | ,, | ,, | 1 | 16 | 8 | = | 16,654 0 0 | 4,741 | ,, | ,, | 1 | 18 | 4 | = | 9,036 18 4 |
| Potatoes (Winter) ... ... | 4,081 | tons | ,, | 4 | 5 | 4 | = | 17,412 5 4 | 6,414 | tons | ,, | 4 | 5 | 4 | = | 27,365 8 0 |
| Potatoes (Spring) ... ... | 20,000 | ,, | ,, | 6 | 8 | 0 | = | 128,000 0 0 | 11,104 | ,, | ,, | 10 | 2 | 8 | = | 112,520 10 8 |
| Potatoes (Summer) ... ... | 2,250 | ,, | ,, | 4 | 16 | 0 | = | 10,800 0 0 | 1,740 | ,, | ,, | 9 | 12 | 0 | = | 16,704 0 0 |
| Onions ... ... ... ... | 7,749 | ,, | ,, | | 10 | 8 | = | 4,132 16 0 | 4,561 | ,, | ,, | 2 | 17 | 6 | = | 13,112 17 6 |
| Cumin ... ... .. ... | 9,557 | cwts. | ,, | 2 | 0 | 0 | = | 19,114 0 0 | 6,320 | cwts. | ,, | 2 | 10 | 0 | = | 15,800 0 0 |
| Citrus fruits ... ... ... | 194,830 | dozen | ,, | | | 6 | = | 4,870 15 0 | 130,230 | dozen | ,, | | | 6 | = | 3,255 15 0 |
| Grapes ... ... ... ... | 67,445 | cwts. | ,, | | 7 | 9 | = | 26,134 18 9 | 84,574 | cwts. | ,, | | 6 | 5 | = | 27,134 3 2 |
| Other fruits ... ... ... | 88,885 | ,, | ,, | | 6 | 6 | = | 28,887 12 6 | 74,261 | ,, | ,, | | 8 | 0 | = | 29,704 8 0 |
| Cotton lint ... ... ... | 17,895 | lbs. | ,, | | | 5 | = | 372 16 3 | 7,910 | lbs. | ,, | | | $5\frac{1}{4}$ | = | 173 0 $7\frac{1}{2}$ |
| Cotton seed ... ... ... | 479 | cwts. | ,, | | 6 | 9 | = | 161 13 3 | 212 | cwts. | ,, | | 5 | 7 | = | 59 3 8 |
| Vegetables ... ... ... | 423,146 | ,, | ,, | | 7 | 6 | = | 158,679 15 0 | 150,858 | ,, | ,, | | 8 | 9 | = | 66,000 7 6 |
| Tomatoes... ... ... ... | 41,470 | ,, | ,, | | 3 | 3 | = | 6,738 17 6 | 91,810 | ,, | ,, | | | $2\frac{1}{2}$ | = | 956 7 1 |
| Forages ... ... ... ... | 439,488 | "some" | ,, | | 5 | 0 | = | 109,872 0 0 | 706,570 | "some" | ,, | | 3 | 6 | = | 123,649 15 0 |
| Maize ... ... ... ... | 383 | qrs. | ,, | 2 | 0 | 0 | = | 766 0 0 | 1,629 | qrs. | ,, | 1 | 0 | 0 | = | 1,629 0 0 |
| Melons and Water Melons ... | 27,633 | cwts. | ,, | | 6 | 8 | = | 9,211 0 0 | 53,272 | cwts. | ,, | | 6 | 0 | = | 15,981 12 0 |
| | | | | | | | | £727,218 17 11 | | | | | | | | £597,917 2 $10\frac{1}{2}$ |

TABLE VII.

Average prices of Agricultural Produce during 1933-34 and 1934-35.

| | 1933-34. | | | | 1934-35. | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | £ | s. | d. | | £ | s. | d. | | |
| Wheat ... ... ... | 1 | 15 | 0 | to | 1 | 18 | 4 | | per quarter. |
| Barley ... ... ... | | 15 | 0 | „ | 1 | 2 | 6 | | do. |
| Meslin ... ... ... | 1 | 5 | 0 | „ | 1 | 10 | 0 | | do. |
| Beans ... ... ... | 1 | 11 | 8 | „ | 2 | 10 | 0 | | do. |
| Common Vetch ... ... | 1 | 13 | 4 | „ | 2 | 0 | 0 | | do. |
| Chickling Vetch ... ... | 1 | 13 | 4 | „ | 2 | 3 | 4 | | do. |
| Bitter Vetch ... ... | 1 | 9 | 2 | „ | 1 | 16 | 8 | | do. |
| Spring and Summer Potatoes | 2 | 15 | 6 | „ | 9 | 12 | 0 | | per ton. |
| Winter Potatoes ... ... | 3 | 4 | 0 | „ | 6 | 8 | 0 | | do. |
| Onions ... ... ... | | 7 | 6 | „ | | 12 | 10 | | do. |
| Cumin ... ... ... | 1 | 12 | 0 | „ | 2 | 4 | 9 | | per cwt. |
| Citrus Fruits ... ... | | | 6 | „ | | | 9 | | per dozen. |
| Grapes ... ... ... | | 6 | 7 | „ | | 10 | 8 | | per cwt. |
| Figs (fresh) ... ... | | 3 | 9 | „ | | 6 | 6 | | do. |
| Prickly Pears ... ... | | 3 | 0 | „ | | 6 | 0 | | do. |
| Other Friuts ... ... | | 8 | 0 | „ | | 10 | 0 | | do. |
| Vegetables ... ... | | 5 | 6 | „ | | 12 | 0 | | do. |
| Cotton ... ... ... | | | 3¾ | „ | — | — | — | | per lb. |
| Forages... ... ... | | 5 | 0 | „ | | 6 | 0 | | per load of 10 bundles. |
| Wheat-straw ... ... | | 2 | 0 | „ | | 2 | 6 | | per net. |
| Barley-straw ... ... | | 1 | 0 | „ | | 1 | 2 | | per load of 10 bundles. |
| Firewood, thick ... ... | | 7 | 0 | „ | | 8 | 3 | | per pesata of 300 rt. |
| Firewood, in bundles ... | | 2 | 3 | „ | | 2 | 9 | | per load of 10 bundles. |
| Goats' milk ... ... | | 1 | 8 | „ | | 2 | 0½ | | per gallon. |
| Cow's milk ... ... | | 3 | 3 | „ | — | — | — | | do. |
| Wine (common) ... ... | | 1 | 8 | „ | | 2 | 2½ | | do. |
| Cheese ... ... ... | | 1 | 1½ | „ | | 1 | 4 | | per lb. |
| Cheese (fresh) ... ... | | | 5 | „ | | | 7 | | do. |
| Beef ... ... ... | | | 10¼ | „ | | 1 | 1½ | | do. |
| Pork ... ... ... | | | 10 | „ | | 1 | 0½ | | do. |
| Mutton ... ... ... | | | 9¼ | „ | | | 10½ | | do. |
| Lamb ... ... ... | | | 9¼ | „ | | | 10½ | | do. |
| Eggs ... ... ... | | | 7 | „ | | 1 | 8 | | per dozen. |
| Poultry ... ... ... | | 2 | 0 | „ | | 4 | 6 | | per head. |
| Rabbits ... ... ... | | 1 | 6 | „ | | 3 | 0 | | do. |

| | 1934-35. | | | | |
|---|---|---|---|---|---|
| | £ | s. | d. | | |
| Wheat ... ... ... | 1 | 13 | 4 | to | 2 | 3 | 4 | per quarter. |
| Barley ... ... ... | 0 | 18 | 4 | „ | 1 | 1 | 8 | do. |
| Meslin ... ... ... | 1 | 6 | 8 | „ | 1 | 16 | 8 | do. |
| Beans ... ... ... | 2 | 3 | 4 | „ | 2 | 10 | 0 | do. |
| Common Vetch ... ... | 1 | 15 | 0 | „ | 2 | 0 | 0 | do. |
| Chickling Vetch ... ... | 1 | 18 | 4 | „ | 2 | 3 | 4 | do. |
| Bitter Vetch ... ... | 1 | 15 | 0 | „ | 1 | 16 | 8 | do. |
| Spring and Summer Potatoes | 8 | 0 | 0 | „ | 12 | 16 | 0 | per ton. |
| Winter Potatoes ... ... | 3 | 17 | 0 | „ | 6 | 18 | 8 | do. |
| Onions ... ... ... | 2 | 15 | 0 | „ | 5 | 0 | 0 | do. |
| Cumin ... ... ... | 1 | 12 | 0 | „ | 1 | 15 | 0 | per cwt. |
| Citrus Fruits ... ... | | | 5 | „ | | | 10 | per dozen. |
| Grapes ... ... ... | | 5 | 10 | „ | | 7 | 2 | per cwt. |
| Figs (fresh) ... ... | | 2 | 2 | „ | | 4 | 6 | do. |
| Prickly Pears ... ... | | 2 | 0 | „ | | 4 | 0 | do. |
| Other Friuts ... ... | | 7 | 6 | „ | | 12 | 0 | do. |
| Vegetables ... ... | | 5 | 9 | „ | | 13 | 0 | do. |
| Cotton ... ... ... | | | 5¼ | „ | — | — | — | per lb. |
| Forages... ... ... | | 2 | 3 | „ | | 4 | 0 | per load of 10 bundles. |
| Wheat-straw ... ... | | 2 | 0 | „ | | 2 | 6 | per net. |
| Barley-straw ... ... | | 1 | 3 | „ | | 1 | 8 | per load of 10 bundles. |
| Firewood, thick ... ... | | 7 | 6 | „ | | 8 | 6 | per pesata of 300 rt. |
| Firewood, in bundles ... | | 2 | 3 | „ | | 3 | 0 | per load of 10 bundles. |
| Goats' milk ... ... | | 1 | 7½ | „ | | 2 | 0 | per gallon. |
| Cow's milk ... ... | | 3 | 4 | „ | — | — | — | do. |
| Wine (common) ... ... | | 1 | 4 | „ | | 2 | 1 | do. |
| Cheese ... ... ... | | | 11 | „ | | 1 | 4 | per lb. |
| Cheese (fresh) ... ... | | | 4 | „ | | | 6 | do. |
| Beef ... ... ... | | | 10¼ | „ | | 1 | 1½ | do. |
| Pork ... ... ... | | | 10 | „ | | 1 | 0¼ | do. |
| Mutton ... ... ... | | | 9¼ | „ | | | 10½ | do. |
| Lamb ... ... ... | | | 9¼ | „ | | | 10½ | do. |
| Eggs ... ... ... | | | 8 | „ | | 2 | 0 | per dozen. |
| Poultry ... ... ... | | 1 | 8 | „ | | 5 | 0 | per head. |
| Rabbits ... ... ... | | 1 | 6 | „ | | 2 | 9 | do. |

TABLE VIII.

The Police returns of livestock on the 31st. December, 1934. as compared with the returns on the 31st. December, 1933, are given in the subjoined table :—

| Livestock | 31st. December, 1934 | | | 31st. December, 1933 | | |
|---|---|---|---|---|---|---|
| | Malta | Gozo | Total | Malta | Gozo | Total |
| Cattle:— | | | | | | |
| Maltese breed ... | 1,270 | 885 | 2,155 | 1,838 | 459 | 2,297 |
| Foreign breeds ... | 1,361 | 504 | 1,865 | 933 | 682 | 1,615 |
| Ovines:— | | | | | | |
| Goats ... ... | 20,611 | 10,948 | 31,559 | 20,697 | 7,711 | 28,408 |
| Sheep ... ... | 10,060 | 6,065 | 16,125 | 11,148 | 8,474 | 19,622 |
| Pigs ... ... ... | 4,871 | 1,694 | 6,565 | 4,649 | 866 | 5,515 |
| Donkeys:— | | | | | | |
| Maltese breed ... | 68 | 26 | 94 | 106 | 37 | 143 |
| Foreign breeds ... | 2,358 | 960 | 3,318 | 2,755 | 1,298 | 4,053 |
| Horses ... ... ... | 2,179 | 265 | 2,444 | 2,712 | 339 | 3,051 |
| Mules ... ... ... | 2,440 | 485 | 2,925 | 2,526 | 566 | 3,092 |

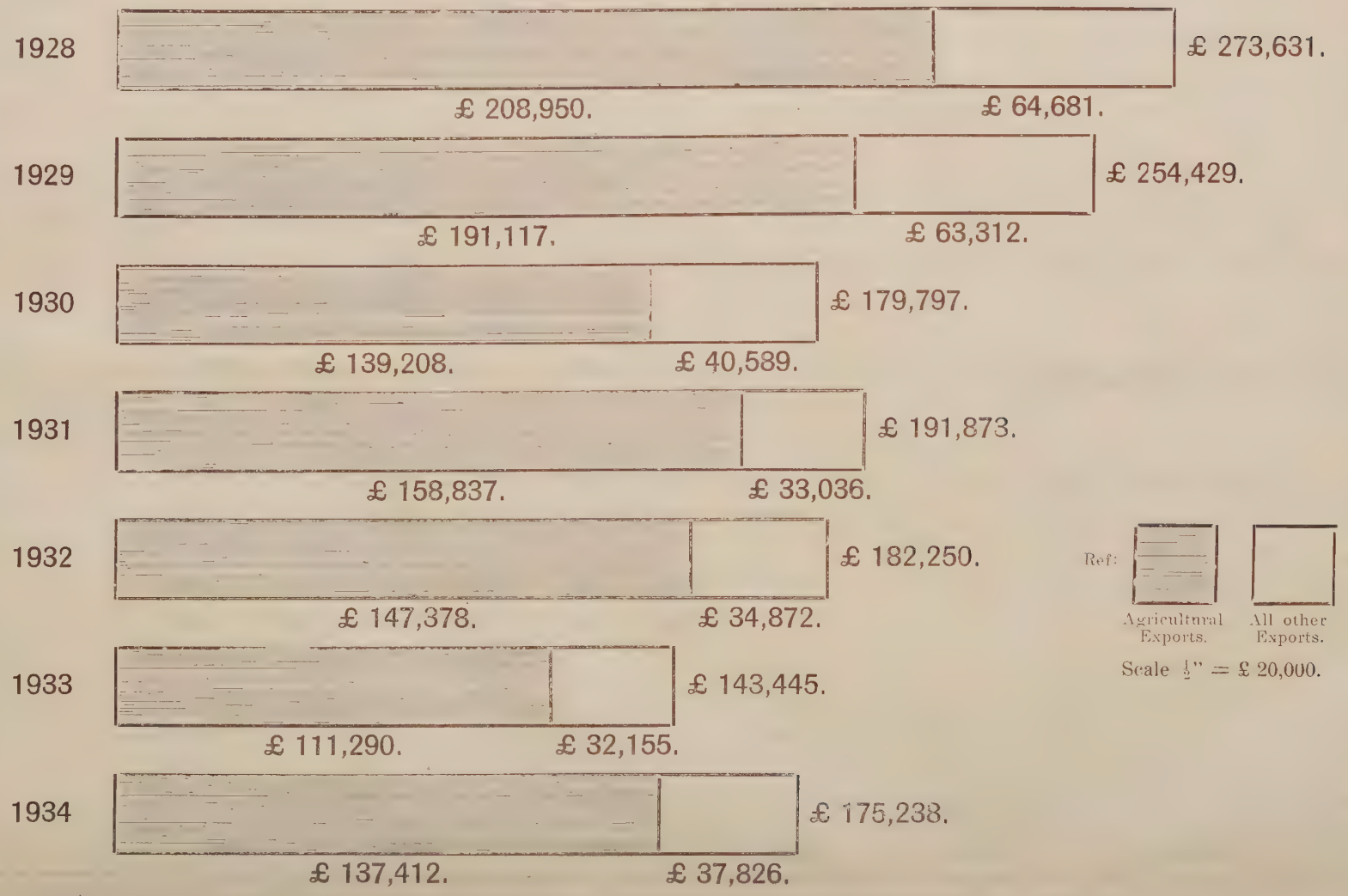
TABLE IX. Return showing the Quantities and Value of Eggs imported into Malta during the five years ended 31st December, 1934.

| Countries of origin | 1930 | | 1931 | | 1932 | | 1933 | | 1934 | | Total Imports | | Average Yearly Imports | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Quantities | Value | Quantities | Value | Quantities | Value | Quantities | Value | Quantities | Value | Quantities | Value | Quantities | Value |
| | Dozen | £ | Dozen | £ | Dozen | £ | Dozen | £ | Dozen | £ | Dozen | £ | Dozen | £ |
| Egypt ... ... | 77,320 | 3,088 | 153,560 | 5,175 | 240,260 | 7,345 | 357,260 | 8,035 | 411,960 | 9,396 | 1,240,360 | 33,039 | 248,072 | 6,607·8 |
| France ... ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Algiers ... ... | 720 | 48 | ... | ... | .. | ... | ... | ... | .. | ... | 720 | 48 | 144 | 9·6 |
| Morocco ... ... | 20,400 | 1,302 | 25,920 | 1,177 | 3,600 | 225 | ... | ... | .. | ... | 49,920 | 2,704 | 9,984 | 540 8 |
| Syria ... ... | 43,700 | 1,827 | 30,000 | 1,108 | 4,500 | 90 | ... | ... | 5,690 | 175 | 83,800 | 3,200 | 16,760 | 640 |
| Tunis ... ... | 420 | 24 | ... | ... | ... | ... | ... | ... | ... | ... | 420 | 24 | 84 | 4.8 |
| Italy ... .. | 45,720 | 1,866 | 101,270 | 3,512 | 97,800 | 2,985 | 63,900 | 1,427 | ... | ... | 308,690 | 9,790 | 61,738 | 1,958 |
| Libya ... ... | 38,340 | 2,207 | 74,030 | 3,356 | 26,470 | 1,395 | 23,640 | 953 | 20,972 | 821 | 183,452 | 8,726 | 36,690·4 | 1,745·2 |
| Smyrna ... ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| H. M. Ship's Stores | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Belgium ... ... | 3,000 | 60 | ... | ... | 8,920 | 466 | ... | ... | ... | ... | 11,920 | 526 | 2,384 | 105·2 |
| Greece ... ... | ... | ... | 6,600 | 215 | ... | ... | ... | ... | ... | ... | 6,600 | 215 | 1,320 | 43 |
| Scala Nuova .. | ... | ... | 2,120 | 58 | ... | ... | ... | ... | ... | ... | 2,120 | 58 | 424 | 11·6 |
| Turkey ... ... | ... | ... | 9,600 | 252 | 46,735 | 1,593 | 72,520 | 2,892 | 192,150 | 6,296 | 321,035 | 11,033 | 64,207 | 2,206·6 |
| United Kingdom , | ... | ... | ... | ... | 8 | 3 | 42 | 21 | 26 | 28 | 76 | 52 | 15.2 | 10·4 |
| Bulgaria ... ... | ... | ... | ... | ... | 100 | 4 | 3,360 | 133 | 8,520 | 257 | 11,980 | 394 | 2,396 | 78·8 |
| Spain ... ... | ... | ... | ... | ... | 6,000 | 100 | ... | ... | ... | ... | 6,000 | 100 | 1,200 | 20 |
| Albania ... ... | ... | ... | ... | ... | ... | ... | 35,760 | 1,487 | 95,791 | 2,629 | 131,551 | 4,116 | 26,310·8 | 823·2 |
| Yugo-Slavia ... | ... | ... | ... | ... | ... | ... | 103,280 | 3,697 | 17,460 | 454 | 120,740 | 4,151 | 24,148 | 830·2 |
| Denmark .. ... | ... | ... | ... | ... | ... | ... | ... | . | 1,500 | 87 | 1,500 | 87 | 300 | 17·4 |
| Netherlands ... | ... | ... | ... | ... | ... | ... | ... | ... | 6,000 | 302 | 6,000 | 302 | 1,200 | 60 4 |
| Poland ... .. | ... | ... | ... | ... | ... | ... | ... | ... | 6,300 | 380 | 6,300 | 380 | 1,260 | 76 |
| Total ... | 229,620 | 10,422 | 403,100 | 14,847 | 434,393 | 14,206 | 659,762 | 18,645 | 766,312 | 20,825 | 2,493 187 | 78,945 | 498,637·4 | 15,789 |

N.B. The marking of imported eggs was started on the 15th August 1933, in terms of Act No. XXX of 1933.

TABLE X.

## Diagram showing relation between "Agricultural Exports" and "All other Exports", for the years 1928-1934,




N.B.—Diminishing values due to falling prices.

TABLE XI.

Return showing Quantities and Values of Agricultural Exports during the years 1929-34.

| Article | Country of Final Destination | | 1929 | | 1930 | | 1931 | | 1932 | | 1933 | | 1934 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Quantities | Value | Quantities | Value | Quantities | Value | Quantities | Value | Quantities | Value | Quantities | Value |
| | | | | £ | | £ | | £ | | £ | | £ | | £ |
| Animals living:— | | | | | | | | | | | | | | |
| Fowls Poultry ... ... ... | Libya ... ... | No. | 630 | 156 | 88 | 18 | ... | ... | ... | ... | ... | ... | ... | ... |
| Sheep and Swine ... ... ... | Tunis ... ... | „ | 2 | 4 | ... | ... | ... | ... | ... | ... | 3 | 4 | ... | ... |
| Cheese ... ... ... ... ... | Egypt ... ... | Cwts. | 29 | 90 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| | Tunis ... ... | „ | 33 | 121 | 35 | 104 | 24 | 60 | 1 | 3 | 4 | 13 | 11 | 16 |
| | Italy ... ... | „ | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 2 | 5 |
| | Libya ... ... | „ | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 2 | 6 |
| | Total ... | ... ... | 62 | 211 | 35 | 104 | 24 | 60 | 1 | 3 | 4 | 13 | 15 | 27 |
| Eggs ... ... ... ... ... | United Kingdom... | Doz. | ... | ... | ... | ... | ... | ... | 3,300 | 135 | 100 | 5 | ... | ... |
| | Italy ... ... | „ | ... | ... | ... | ... | ... | ... | 60 | 3 | ... | ... | ... | ... |
| | Total ... | ... ... | ... | ... | ... | ... | ... | ... | 3,360 | 138 | 100 | 5 | ... | ... |
| Fruits (fresh or dried):— | | | | | | | | | | | | | | |
| Oranges and Mandarines ... ... | United Kingdom... | Doz. | 7,981 | 505 | 6,832 | 408 | 1,324 | 82 | 1,209 | 91 | 6,492 | 234 | 1,877 | 126 |
| | France ... ... | „ | ... | ... | 70 | 3 | ... | ... | ... | ... | ... | ... | ... | ... |
| | Norway ... ... | „ | 178 | 10 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| | Tunis ... ... | „ | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 600 | 24 |
| | Total ... | ... ... | 8,159 | 515 | 6,902 | 411 | 1,324 | 82 | 1,209 | 91 | 6,492 | 234 | 2,477 | 150 |
| Other fruits ... ... ... ... | Italy ... ... | Value | ... | ... | ... | 67 | ... | 90 | ... | ... | ... | ... | ... | 180 |
| | Libya ... ... | „ | ... | 130 | ... | 39 | ... | ... | ... | ... | ... | ... | ... | 51 |
| | Tunis ... ... | „ | ... | ... | ... | 10 | ... | 42 | ... | ... | ... | ... | ... | 111 |
| | United Kingdom... | „ | ... | ... | ... | ... | ... | ... | ... | 93 | ... | ... | ... | ... |
| | Total ... | ... ... | ... | 130 | ... | 116 | ... | 132 | ... | 93 | ... | ... | ... | 342 |
| Pulse:— | | | | | | | | | | | | | | |
| Kidney Beans... ... ... ... | Belgium ... ... | Cwts. | ... | ... | ... | ... | ... | ... | ... | ... | 148 | 60 | ... | ... |
| Tomato Sauce and extracts of tomatoes ... ... ... ... | Italy ... ... | „ | 48 | 50 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| | Tunis ... ... | „ | 165 | 229 | ... | ... | 6 | 8 | ... | ... | ... | ... | 292 | 280 |
| | Brazil ... ... | „ | ... | ... | 955 | 807 | ... | ... | ... | ... | ... | ... | ... | ... |
| | Spain ... ... | „ | ... | ... | 20 | 15 | ... | ... | ... | ... | ... | ... | ... | ... |
| | Ceylon ... ... | „ | ... | ... | ... | ... | 2 | 3 | ... | ... | ... | ... | ... | ... |
| | Cyprus ... ... | „ | ... | ... | ... | ... | ... | ... | 438 | 370 | 40 | 40 | ... | ... |
| | Kenya ... ... | „ | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 7 | 20 |
| | Total ... | ... ... | 213 | 279 | 975 | 822 | 8 | 11 | 438 | 370 | 40 | 40 | 299 | 300 |
| Vegetables:— | | | | | | | | | | | | | | |
| Garlic ... ... ... ... ... | Tunis ... ... | Cwts. | 213 | 62 | ... | ... | ... | ... | 18 | 9 | 87 | 39 | ... | ... |
| | Libya ... ... | „ | 46 | 16 | ... | ... | ... | ... | ... | ... | ... | ... | 20 | 3 |
| | United Kingdom ... | „ | ... | ... | ... | ... | ... | ... | 120 | 70 | ... | ... | ... | ... |
| | Belgium ... ... | „ | ... | ... | ... | ... | ... | ... | 10 | 5 | ... | ... | ... | ... |
| | Total ... | ... ... | 259 | 78 | ... | ... | ... | ... | 148 | 84 | 87 | 39 | 20 | 3 |

TABLE XI.— *cont.*

Return showing Quantities and Values of Agricultural Exports during the years 1929-34.

| Article | Country of Final Destination | | 1929 | | 1930 | | 1931 | | 1932 | | 1933 | | 1934 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Quantities | Value | Quantities | Value | Quantities | Value | Quantities | Value | Quantities | Value | Quantities | Value |
| | | | | £ | | £ | | £ | | £ | | £ | | £ |
| Vegetables— cont. | | | | | | | | | | | | | | |
| Onions ... ... ... ... ... | United Kingdom... | Cwts. | 2,420 | 435 | 5,385 | 663 | 7,006 | 1,442 | 12,498 | 3,064 | 2,510 | 414 | 1,526 | 212 |
| | Trinidad ... ... | ,, | 397 | 140 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| | Austria ... ... | ,, | 2,280 | 340 | 4,321 | 658 | ... | ... | ... | ... | ... | ... | ... | ... |
| | Belgium ... ... | ,, | 2,939 | 549 | 400 | 60 | 1,326 | 400 | 1,027 | 442 | 3,055 | 132 | ... | ... |
| | Denmark ... ... | ,, | 544 | 103 | 146 | 14 | 94 | 25 | ... | ... | ... | ... | ... | ... |
| | Germany ... ... | ,, | 1,846 | 288 | 240 | 52 | ... | ... | ... | ... | ... | ... | 195 | 28 |
| | Italy ... ... | ,, | 17,281 | 2,823 | 11,299 | 2,227 | 380 | 175 | 8,267 | 2,018 | .. | ... | 400 | 45 |
| | Libya ... ... | ,, | 2,124 | 530 | 2,140 | 318 | 590 | 129 | 130 | 27 | 867 | 162 | 2,290 | 307 |
| | Netherlands ... | ,, | 43,661 | 7,513 | 19,254 | 2,829 | 15,296 | 3,618 | 42,084 | 7,846 | 13,672 | 1,027 | 16,981 | 1,882 |
| | Norway ... ... | ,, | 384 | 66 | 545 | 115 | 316 | 82 | 841 | 186 | 452 | 88 | 1,860 | 302 |
| | Sweden ... ... | ,, | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 5,271 | 736 |
| | Tunis ... ... | ,, | 9,125 | 2,653 | 6,145 | 1,451 | 3,812 | 913 | 3,447 | 872 | 3,281 | 537 | 170 | 20 |
| | Cuba ... ... | ,, | 2 6 | 62 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| | Ceylon ... ... | ,, | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 416 | 83 |
| | Palestine ... ... | ,, | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 40 | 9 |
| | Egypt ... ... | ,, | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 60 | 10 |
| | Morocco ... ... | ,, | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 400 | 68 |
| | Switzerland ... | ,, | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 500 | 42 |
| | Total ... | ... ... | 83,297 | 15,502 | 49,875 | 8,387 | 28,940 | 6,784 | 68,294 | 14,455 | 23,837 | 2,360 | 30,109 | 3,744 |
| Potatoes ... ... ... ... | United Kingdom... | Tons. | 239 | 2,891 | ... | ... | 496 | 5,172 | 1,448 | 14,701 | 618 | 6,842 | 1,457 | 12,052 |
| | Belgium ... ... | ,, | 331 | 3,275 | 16 | 100 | 164 | 1,520 | 310 | 3,612 | 665 | 3,938 | 948 | 9,848 |
| | Germany ... ... | ,, | 2,189 | 25,159 | 1,081 | 9,849 | 604 | 6,010 | 568 | 6,174 | 312 | 2,236 | 222 | 2,164 |
| | Hungary ... ... | ,, | 47 | 530 | 70 | 395 | ... | ... | ... | ... | ... | ... | ... | ... |
| | Italy ... ... | ,, | 1,214 | 14,134 | 514 | 4,965 | 300 | 3,714 | 296 | 3,581 | 169 | 1,666 | 204 | 2,436 |
| | Netherlands ... | ,, | 6,753 | 61,823 | 6,083 | 55,201 | 7,604 | 78,792 | 6,619 | 67,731 | 7,140 | 58,604 | 8,797 | 73,944 |
| | Switzerland ... | ,, | 39 | 390 | 46 | 390 | 38 | 345 | 61 | 645 | 54 | 442 | ... | ... |
| | Tunis ... ... | ,, | 1,822 | 12,554 | 772 | 4,330 | ... | ... | 411 | 2,647 | 102 | 460 | ... | ... |
| | Ceylon ... ... | ,, | 739 | 6,527 | 1,799 | 12,060 | 1,841 | 13,350 | 690 | 5,526 | 1,048 | 5,169 | 487 | 3,313 |
| | Austria ... ... | ,, | 60 | 770 | 10 | 55 | ... | ... | 20 | 180 | ... | ... | ... | ... |
| | Denmark ... ... | ,, | 1 | 10 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| | Egypt ... ... | ,, | 4 | 22 | 50 | 413 | ... | ... | ... | ... | ... | ... | 30 | 206 |
| | Greece ... ... | ,, | 10 | 70 | 8 | 32 | ... | ... | ... | ... | ... | ... | ... | ... |
| | Turkey ... ... | ,, | 25 | 248 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| | British India ... | ,, | ... | ... | 3 | 20 | ... | ... | ... | ... | ... | ... | 125 | 1,113 |
| | Spain ... ... | ,, | ... | ... | ... | ... | 895 | 6,332 | ... | ... | ... | ... | ... | ... |
| | France ... ... | ,, | ... | ... | ... | ... | ... | ... | 32 | 257 | ... | ... | 1 | 7 |
| | Sudan ... ... | ,, | ... | ... | ... | ... | ... | ... | ... | ... | 1 | 7 | ... | ... |
| | Libya ... ... | ,, | ... | ... | ... | ... | ... | ... | ... | ... | 1 | 4 | ... | ... |
| | Aden ... ... | ,, | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 18 | 100 |
| | Palestine ... ... | ,, | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 9 | 41 |
| | Morocco ... ... | ,, | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 1 | 8 |
| | Yugo Slavia ... | ,, | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 11 | 119 |
| | Other Ships' Stores | ,, | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 3 | 19 |
| | Total ... | ... ... | 13,483 | 128,403 | 10,452 | 87,810 | 11,942 | 115,255 | 10,425 | 105,054 | 10,170 | 79,368 | 12,313 | 105,370 |
| Tomatoes ... ... ... ... | Italy ... ... | Value | ... | ... | ... | ... | ... | ... | ... | ... | ... | 8 | ... | ... |

TABLE XI.—*cont.*

Return showing Quantities and Values of Agricultural Exports during the years 1929-34.

| Article | Country of Final Destination | | 1929 | | 1930 | | 1931 | | 1932 | | 1933 | | 1934 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Quantities | Value | Quantities | Value | Quantities | Value | Quantities | Value | Quantities | Value | Quantities | Value |
| Vegetables—cont. | | | | £ | | £ | | £ | | £ | | £ | | £ |
| Other vegetables ... ... ... | United Kingdom ... | Tons | ... | ... | ... | ... | ... | ... | ... | ... | ... | 4 | ... | 2 |
| | Tunis ... ... | ,, | ... | ... | ... | ... | ... | ... | ... | ... | ... | 26 | ... | 25 |
| | Libya ... ... | ,, | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 25 |
| | Total ... | ... ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 30 | ... | 52 |
| Bones and hoofs ... ... ... | United Kingdom ... | Cwts. | ... | ... | ... | ... | ... | ... | ... | ... | 41 | 8 | ... | ... |
| | France ... ... | ,, | 159 | 45 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| | Germany ... ... | ,, | 379 | 105 | 752 | 265 | ... | ... | ... | ... | ... | ... | ... | ... |
| | Italy ... ... | ,, | 2,494 | 791 | 1,417 | 441 | 410 | 87 | 102 | 18 | 4,450 | 960 | 1,206 | 316 |
| | Netherlands ... | ,, | 60 | 195 | ... | ... | 3,830 | 905 | ... | ... | ... | ... | 780 | 152 |
| | Austria ... ... | ,, | 318 | 55 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| | Total ... ... ... | | 3,410 | 1,191 | 2,169 | 706 | 4,240 | 992 | 102 | 18 | 4,491 | 968 | 1,986 | 468 |
| Cotton (raw) ... ... ... ... | United Kingdom ... | Cwts. | ... | ... | ... | ... | ... | ... | ... | ... | 149 | 349 | 196 | 490 |
| | Italy ... ... | ,, | 846 | 3,169 | ... | ... | ... | ... | ... | ... | 314 | 687 | ... | ... |
| | Germany ... ... | ,, | ... | ... | ... | ... | ... | ... | ... | ... | 34 | 20 | ... | ... |
| | Total ... ... ... | | 846 | 3,169 | ... | ... | ... | ... | ... | ... | 497 | 1,056 | 196 | 490 |
| Cumin seed ... ... ... ... | United Kingdom ... | Cwts. | 225 | 565 | 50 | 150 | ... | ... | 140 | 182 | 100 | 229 | 100 | 226 |
| | Trinidad ... ... | ,, | 61 | 137 | 20 | 46 | 40 | 91 | ... | ... | ... | ... | 40 | 50 |
| | Algiers ... ... | ,, | 65 | 175 | ... | ... | ... | ... | ... | ... | ... | ... | 30 | 50 |
| | Brazil ... ... | ,, | 842 | 2,150 | ... | ... | ... | ... | ... | ... | ... | ... | 737 | 1,766 |
| | Chili ... ... | ,, | 312 | 881 | 197 | 565 | 282 | 431 | 502 | 739 | 90 | 125 | 800 | 1,661 |
| | Egypt ... ... | ,, | 750 | 2,000 | 46 | 120 | 845 | 1,232 | 502 | 612 | 806 | 930 | ... | ... |
| | Germany ... ... | ,, | 1,062 | 2,420 | 1,466 | 3,405 | 1,623 | 3,522 | 1,903 | 1,993 | 1,611 | 2,226 | 1,136 | 2,691 |
| | Italy ... ... | ,, | 208 | 784 | 266 | 607 | 61 | 130 | 196 | 286 | 250 | 697 | 205 | 585 |
| | Libya ... ... | ,, | 42 | 78 | 59 | 103 | 34 | 34 | ... | ... | 10 | 16 | 73 | 141 |
| | Netherlands ... | ,, | 2,219 | 5,668 | 2,433 | 5,951 | 2,092 | 3,900 | 788 | 918 | 1,117 | 1,730 | 782 | 1,733 |
| | Norway ... ... | ,, | 70 | 167 | 140 | 326 | 116 | 213 | 50 | 67 | 110 | 240 | 100 | 269 |
| | South America (country unspecified) ... | ,, | 100 | 240 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| | Tunis ... ... | ,, | 186 | 391 | 69 | 179 | 138 | 283 | 25 | 26 | 121 | 198 | 82 | 183 |
| | U.S. America ... | ,, | 205 | 575 | ... | ... | 102 | 200 | ... | ... | 255 | 461 | 366 | 1,040 |
| | France ... .. | ,, | 2,022 | 4,489 | 950 | 2,076 | 556 | 890 | 1,353 | 1,328 | 362 | 500 | 260 | 444 |
| | Sweden ... ... | ,, | 10 | 22 | 15 | 40 | ... | ... | ... | ... | ... | ... | 20 | 48 |
| | Argentine Republic | ,, | ... | ... | 639 | 1,687 | 427 | 761 | 596 | 839 | 163 | 260 | 160 | 477 |
| | Peru ... ... | ,, | ... | ... | 70 | 195 | ... | ... | ... | ... | ... | ... | ... | ... |
| | Mexico ... ... | ,, | ... | ... | ... | ... | 41 | 85 | ... | ... | ... | ... | ... | ... |
| | Roumania ... ... | ,, | ... | ... | ... | ... | 151 | 320 | ... | ... | ... | ... | ... | ... |
| | Ceylon ... ... | ,, | ... | ... | ... | ... | ... | ... | 382 | 554 | ... | ... | ... | ... |
| | Bolivia ... ... | ,, | ... | ... | ... | ... | ... | ... | 2 | 2 | .. | ... | ... | ... |
| | Portugal ... ... | ,, | ... | ... | ... | ... | .. | ... | 100 | 141 | ... | ... | ... | ... |
| | Spain ... ... | ,, | ... | ... | ... | ... | 103 | 200 | 100 | 110 | 102 | 100 | ... | ... |
| | Belgium ... ... | ,, | ... | ... | ... | ... | ... | ... | ... | ... | 21 | 30 | ... | ... |
| | Denmark ... ... | ,, | ... | ... | ... | ... | ... | ... | ... | ... | 10 | 15 | ... | ... |
| | Equador ... ... | ,, | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 113 | 300 |
| | Total .. | ... ... | 8,479 | 20,742 | 6,420 | 15,450 | 6,611 | 12,292 | 6,639 | 7,797 | 5,228 | 7,751 | 5,004 | 11,667 |

TABLE XI.—*cont.*

Return showing Quantities and Values of Agricultural Exports during the years 1929-34.

| Article | Country of Final Destination | | 1929 | | 1930 | | 1931 | | 1932 | | 1933 | | 1934 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Quantities | Value | Quantities | Value | Quantities | Value | Quantities | Value | Quantities | Value | Quantities | Value |
| | | | | £ | | £ | | £ | | £ | | £ | | £ |
| Hides and Skins (raw or dried) ... | United Kingdom... | Cwts. | 342 | 843 | 134 | 430 | 195 | 445 | 56 | 90 | 18 | 103 | 43 | 72 |
| | Belgium ... ... | ,, | 102 | 845 | 12 | 27 | ... | ... | 16 | 190 | 21 | 267 | 23 | 223 |
| | France ... ... | ,, | 36 | 450 | 237 | 722 | 357 | 893 | 769 | 1,727 | 187 | 955 | 97 | 460 |
| | Germany ... ... | ,, | 63 | 89 | ... | ... | 276 | 756 | 19 | 20 | 5 | 15 | 7 | 24 |
| | Greece ... ... | ,, | 995 | 2,820 | 553 | 1,472 | 363 | 510 | 3,142 | 4,214 | 2,301 | 3,162 | 2,348 | 3,337 |
| | Italy ... ... | ,, | 1,083 | 7,734 | 7,436 | 18,822 | 4,938 | 11,918 | 3,614 | 6,502 | 4,524 | 7,681 | 2,808 | 4,857 |
| | U.S. America ... | ,, | 102 | 265 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| | Netherlands ... | ,, | ... | ... | 15 | 65 | 3 | 15 | ... | ... | ... | ... | ... | ... |
| | Turkey ... .. | ,, | ... | ... | 243 | 405 | 754 | 1,163 | 391 | 501 | 230 | 427 | 240 | 363 |
| | Syria ... ... | ,, | ... | ... | ... | ... | ... | ... | 23 | 34 | ... | ... | ... | ... |
| | Spain ... ... | ,, | 6 | 73 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| | Libya ... ... | ,, | ... | ... | ... | ... | ... | ... | ... | ... | 558 | 800 | 18 | 180 |
| | Tunis ... ... | ,, | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 30 | 76 |
| | Total ... | ... ... | 2,729 | 13,128 | 8,630 | 21,943 | 6,886 | 15,700 | 8,030 | 13,278 | 7,904 | 13,410 | 5,614 | 9,592 |
| Tallow ... ... ... ... ... | Italy ... ... | Cwts. | 2,800 | 4,580 | 987 | 1,411 | 4,094 | 4,394 | 2,716 | 3,369 | 2,294 | 2,338 | 3,945 | 3,652 |
| | United Kingdom ... | ,, | ... | ... | ... | ... | 1,017 | 1,428 | ... | ... | 6 | 7 | 596 | 545 |
| | Netherlands ... | ,, | ... | ... | ... | ... | 22 | 35 | ... | ... | ... | ... | 40 | 100 |
| | Total ... | ... ... | 2,800 | 4,580 | 987 | 1,411 | 5,133 | 5,857 | 2,716 | 3,369 | 2,300 | 2,845 | 4,581 | 4,297 |
| Tar ... ... ... ... ... | Egypt ... ... | Cwts. | 1,514 | 335 | 505 | 112 | ... | ... | ... | ... | ... | ... | ... | ... |
| | Tunis ... ... | ,, | 3 | 3 | ... | ... | ... | ... | 2,685 | 464 | 100 | 25 | ... | ... |
| | Belgium ... ... | ,, | ... | ... | ... | ... | ... | ... | 524 | 58 | 426 | 42 | ... | ... |
| | Italy ... ... | ,, | ... | ... | ... | ... | ... | ... | ... | ... | 20 | 5 | ... | ... |
| | Total ... | ... ... | 1,517 | 338 | 505 | 112 | ... | ... | 3,209 | 522 | 546 | 72 | ... | ... |
| Horns and hoofs ... ... .... | France ... ... | Cwts. | ... | ... | ... | ... | ... | ... | 157 | 50 | ... | ... | ... | ... |
| | Italy ... ... | ,, | ... | ... | ... | ... | ... | ... | 20 | 7 | ... | ... | ... | ... |
| | Total .. | ... ... | ... | ... | ... | ... | ... | ... | 177 | 57 | ... | ... | ... | ... |
| Squills ... ... ... ... ... | United Kingdom ... | Cwts. | ... | ... | ... | ... | ... | ... | ... | ... | 20 | 20 | 195 | 114 |
| Animals living:— | | | | | | | | | | | | | | |
| Horses ... ... ... ... ... | Tunis ... ... | No. | 5 | 54 | 1 | 12 | 4 | 230 | ... | ... | 1 | 20 | ... | ... |
| | France ... ... | ,, | ... | ... | ... | ... | 10 | 55 | ... | ... | ... | ... | ... | ... |
| | Total ... | ... ... | 5 | 54 | 1 | 12 | 14 | 285 | ... | ... | 1 | 20 | ... | ... |
| Donkeys ... ... ... ... | Tunis ... ... | No. | 6 | 75 | 3 | 22 | ... | ... | 3 | 17 | ... | ... | ... | .. |

TABLE XI.—*cont.*

Return showing Quantities and Values of Agricultural Exports during the years 1929-34.

| Articles | Country of Final Destination | | 1929 | | 1930 | | 1931 | | 1932 | | 1933 | | 1934 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Quantities | Value | Quantities | Value | Quantities | Value | Quantities | Value | Quantities | Value | Quantities | Value |
| | | | | £ | | £ | | £ | | £ | | £ | | £ |
| Animals living—cont. | | | | | | | | | | | | | | |
| Goats ... ... ... .. ... | Cyprus ... ... | No. | ... | ... | 12 | 35 | ... | ... | ... | ... | ... | ... | ... | ... |
| | Albania ... ... | ,, | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 40 |
| | Total ... | ... ... | ... | ... | 12 | 35 | ... | ... | ... | ... | ... | ... | ... | 40 |
| Mules ... ... .. ... ... | Tunis ... ... | No. | 33 | 320 | 26 | 351 | 7 | 65 | ... | ... | ... | ... | ... | ... |
| | France ... ... | ,, | ... | ... | ... | ... | 5 | 29 | ... | ... | ... | ... | ... | ... |
| | Total ... | ... ... | 33 | 320 | 26 | 351 | 12 | 94 | ... | ... | ... | ... | ... | ... |
| Foods for animals—Bran ... ... | United Kingdom ... | Cwts. | 478 | 120 | 478 | 106 | ... | ... | ... | ... | 6,552 | 1,275 | 1,680 | 420 |
| | Germany ... ... | ,, | 1,600 | 440 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| | Italy ... ... | ,, | 2,429 | 645 | 2,806 | 495 | 3,457 | 613 | 137 | 31 | 75 | 13 | 591 | 139 |
| | Libya ... ... | ,, | 3,391 | 1,035 | 3,516 | 780 | 2,829 | 700 | 6,140 | 1,858 | 3,586 | 801 | 735 | 177 |
| | Tunis ... ... | ,, | ... | ... | ... | ... | ... | ... | 338 | 85 | ... | ... | ... | ... |
| | France ... ... | ,, | ... | ... | ... | ... | ... | ... | ... | ... | 3,156 | 820 | ... | ... |
| | Total ... | ... ... | 7,898 | 2,240 | 6,800 | 1,381 | 6,286 | 1,313 | 6,615 | 1,974 | 13,369 | 2,909 | 3,006 | 736 |
| Grain—Barley ... ... ... ... | Italy ... ... | Cwts. | ... | ... | 260 | 72 | ... | ... | ... | ... | ... | ... | ... | ... |
| Pulse—Beans ... ... ... ... | Italy ... ... | Cwts. | ... | ... | 39 | 45 | ... | ... | 40 | 50 | 47 | 45 | ... | ... |
| | Libya ... ... | ,, | ... | ... | ... | ... | ... | ... | 15 | 8 | 67 | 55 | 6 | 6 |
| | Tunis ... ... | ,, | 2 | 2 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| | Total ... | ... ... | 2 | 2 | 39 | 45 | ... | ... | 55 | 58 | 114 | 100 | 6 | 6 |
| Wine in Bottles—(Still) ... ... | United Kingdom ... | Galls. | ... | ... | ... | ... | ... | ... | ... | ... | 200 | 41 | 20 | 14 |
| | Greece ... ... | ,, | ... | ... | ... | ... | ... | ... | ... | ... | 21 | 18 | ... | ... |
| | Turkey ... ... | ,, | ... | ... | ... | ... | ... | ... | ... | ... | 12 | 13 | ... | ... |
| | Total ... | ... ... | ... | ... | ... | ... | ... | ... | ... | ... | 233 | 72 | 20 | 14 |

# APPENDIX I.

GOVERNMENT EXPERIMENTAL FARM.

GHAMMIERI, 11th May, 1936.

Sir,

I have the honour to submit the following report on the working of the Experimental Farm and Stud Station, and on the organization of agriculture for the agricultural year 1934-35.

I have the honour to be,

Sir,

Your obedient servant,

A. AZZOPARDI,
Director of Experimental Farm and
Agricultural Organiser.

The Director of Agriculture,
Valletta.

*Potatoes.*

An experiment was carried out on five varieties of potatoes, in the cultivable land at the Poor House. The soil is a typical red calcareous one, on which our best potatoes are grown.

The land was left fallow in the previous three years, it was deeply worked, manured with 60 qantars * (20 viaggi) of dung per tumolo and later on artificially manured with 70 rot. † of superphosphates, 21 rot. sulphate of ammonia and 21 rot. sulphate of potash.

All the varieties were tested here with varying results, the majority being tried out before, with the exception of the Arran Cairn which is a new variety, kindly supplied by the Ministry of Agriculture, Northern Ireland.

Unfortunately the best yields are obtained from the varieties for which there is no great demand in the market of Great Britain, while the Royal Kidney which is most favoured, yielded a poor crop in all trials. The new variety, the Arran Cairn, has given a medium yield but its irregularity in shape and its high percentage of undersized tubers (35.5%) do not give the impression that it will be suitable for Malta.

| Plot | Variety of potatoes | Area of plot in sq. ft. | Production | | | Total production in qantars | Production per tumolo |
|---|---|---|---|---|---|---|---|
| | | | Grade A in rotoli | Grade B in rotoli | Grade C in rotoli | | |
| A | Royal Kidney ... | 15,000 | 448 | 64 | 420 | 9·42 | 7·17 |
| B | Majestic ... ... | 14,850 | 576 | 256 | 314 | 11·46 | 9·33 |
| C | Arran Cairn ... | 11,000 | 405 | 64 | 319 | 7·88 | 8·70 |
| D | Arran Banner ... | 8,688 | 640 | 42 | 150 | 8·32 | 11·40 |
| E | Arran Chief ... | 12,159 | 608 | — | 300 | 9·08 | 9·00 |

Grade A tubers having a square gauge from $1^1/_3$" to $2^1/_3$".
Grade B tubers having a square gauge over $2^1/_3$".
Grade C tubers having a square gauge from 1" to $1^1/_3$".

Experiments with three varieties of potatoes were also carried out in the vine nurseries at Buskett, to consider the effect of different applications of fertilizers.

The land in question was planted with vines which were uprooted three months before planting potato tubers. All plots received a dressing of 30 kantars per tumolo, farmyard manure and different doses of artificial fertilizers as stated in the following tables. The soil is of a loose calcareous red type. Tubers were planted on the 20th February, germinated on the 21st March and were lifted on the 7th June.

Of the three plots planted with tubers of the Majestic variety, the best yield is that of the plot which received a complete dressing of fertilizers. In plot 2 although the doses of superphosphates and sulphate of ammonia were increased, the yield was less, and this proves the importance of the potash fertilizer for tuber plants. This also shows that potash in these red soils is not ready assimilated by plants. In the third

* One qantar = 175 lbs. † 100 rotoli = 1 qantar.

plot the dressing of superphosphates and sulphate of ammonia was reduced to one half and, wood ashes added, but the yield was considerably reduced. Also in the plot with complete fertilizers the grade "A" tubers amounted to almost two thirds of the produce, a much higher proportion than in the other two varieties.

Four plots were planted with tubers of the Arran Banner variety. The plot receiving a complete dressing yielding the best crop; the yield in plots 5 and 6 was equal, although plot 6 received a dressing of sulphate of ammonia only. This shows that the nitrogenous fertilizer is badly needed in our soils.

The effect of complete dressing of fertilizers is best seen in plot 8, when compared with plots 9 and 10, all three plots being planted with Arran Chief variety. The absence of the potash fertilizers in plot 9 is responsible for the reduction of 2.37 kantars in yield. In plot 10 the use of wood ashes instead appears to exercise a deleterious effect on yield.

The results in some instances are rather conflicting: the effect of complete fertilizers in plots 4 and 8 are quite different when compared with the yields of other plots in their respective group, a similar effect is seen with wood ashes in plots 7 and 10. Such results are partly due to the number of tubers which were sown but did not sprout, owing to some disease with which they were affected and which could not be traced at the time of the inspection.

| Plot No. | Variety of potatoes | Area of plot in square feet | Artificial manure in rotoli per tumolo | Production in rotoli per tumolo | | | Total production in kantars per tumolo |
|---|---|---|---|---|---|---|---|
| | | | | Grade A | Grade B | Seed | |
| 1 | Majestic ... | 12100 sq. ft. | 70 rotoli Superphosphates<br>23 „ Sulph. of Ammonia<br>23 „ Sulph. of Potash | 215 | — | 131 | 3·46 |
| 2 | „ ... | „ | 85 rotoli Superphosphates<br>30 „ Sulph. of Ammonia | 168 | — | 157 | 3·25 |
| 3 | „ ... | „ | 42½ rotoli Superphosphates<br>15 „ Sulph. of Ammonia<br>103 „ Wood Ashes | 155 | — | 116 | 2·71 |
| 4 | Arran Banner | 12100 sq. ft. | 80 rotoli Superphosphates<br>30 „ Sulph. of Ammonia<br>30 „ Sulph. of Potash | 774 | — | 436 | 12·10 |
| 5 | „ „ ... | „ | 80 rotoli Superphosphates<br>30 „ Sulph. of Ammonia | 774 | — | 368 | 11·42 |
| 6 | „ „ ... | „ | 30 rotoli Sulph. of Ammonia | 739 | — | 403 | 11·43 |
| 7 | „ „ ... | „ | 210 rotoli Wood Ashes | 807 | — | 267 | 10·74 |
| 8 | Arran Chief | 12100 sq. ft. | 70 rotoli Superphosphates<br>24 „ Sulph. of Ammonia<br>24 „ Sulph. of Potash | 697 | — | 351 | 10·48 |
| 9 | „ „ ... | „ | 70 rotoli Superphospates<br>24 „ Sulph. of Ammonia | 548 | — | 263 | 8·11 |
| 10 | „ „ ... | „ | 70 rotoli Superphosphates<br>24 „ Sulph. of Ammonia<br>175 „ Wood Ashes | 395 | — | 381 | 7·76 |

*Wheat.*

An experiment was carried out on six varieties of wheat with the principal object of testing the efficiency of treatment of seed before sowing with "Rustica Salus" a viscous chemical. Another aim of this experiment was to test the varieties of wheat tried out last year under different climatic conditions. Each plot measures 2,750 sq.ft., the weight of seed sown in each plot being 4½ rotoli, with the exception of the "Mentana" seed which was 5½ rotoli. Each plot was manured with 12 rotoli of superphosphates, 3 rotoli sulphate of ammonia and 2 rotoli sulphate of potash. The result is tabulated below.

| Variety of wheat | | Production in rotoli | | Production per tumolo in kantars | | Increase in production per tumolo when seed was treated with Rustica salus. | |
|---|---|---|---|---|---|---|---|
| Not treated | Treated | Wheat | Straw | Wheat | Straw | Wheat | Straw |
| Virgilio | | 23·5 | 73· | 2·12 | 5·17 | | |
| | Virgilio | 27· | 81· | 2·37 | 5·72 | + ·25 | + ·55 |
| Cappelli | | 20· | 78· | 1·77 | 5·60 | | |
| | Cappelli | 20·5 | 78· | 1·81 | 5·60 | + ·04 | — |
| Dreadnought | | 16·5 | 54· | 1·44 | 3·82 | | |
| | Dreadnought | 20· | 63· | 1·77 | 4·36 | + ·38 | + ·44 |
| Mentana | | 20. | 35· | 1·77 | 2·48 | | |
| | Mentana | 25·5 | 49· | 2·29 | 2·46 | + ·52 | + ·98 |
| Malta Yellow | | 20· | 54· | 1·77 | 3·82 | | |
| | Malta Yellow | 27·5 | 60· | 2·43 | 4·24 | + ·66 | + ·40 |
| Malta Red | | 12·5 | 55· | 1·09 | 3·94 | | |
| | Malta Red | 21· | 70· | 1·85 | 4·95 | + ·76 | + 1·01 |

The production clearly shows an increase both in grain and in straw in the plots treated with "Rustica Salus". This experiment also shows the superiority of the recently imported wheat varieties when compared with the local long established ones. The yield in wheat of the "Malta Yellow" proved in this particular trial to be an exception, but even in this case the straw produced is considerably less than in the new varieties. Farmers, especially the Gozitan ones, in most instances appreciate a good straw production as it is used as foodstuffs for their livestock.

A trial was made with 5 varieties of wheat to test their behaviour in typical red soils. These are the least adapted for the growing of wheat but it is expedient to include this cereal in the rotation of crops. The plots were manured with 95 rotoli of superphosphates and 15 rotoli of sulphate of ammonia. The seeds were sown in drills on the 7th November and the wheat harvested on the 10th June with the exception of the Mentana which was harvested on the 23rd May. The results are recorded below :—

| Variety of Wheat | Area of plot | Production | Production per tumolo | *Remarks* Weight of 1 tumolo wheat |
|---|---|---|---|---|
| | sq. ft. | tumoli | tumoli | Rotoli |
| Malta Red ... ... ... ... ... | 5,264 | 4½ | 10⅓ | 18 |
| Malta Yellow ... ... ... ... | 5,152 | 5⅙ | 12⅙ | 19 |
| Cappelli ... ... ... ... ... | 10,925 | 12 | 13⅓ | 19 |
| Virgilio ... ... ... ... ... | 10,695 | 16⅙ | 19 | 19 |
| Mentana ... ... ... ... ... | 11,155 | 13 | 14 | 18 |

From this trial it appears that the "Malta Yellow", in this kind of soil adapts itself better to the dryness of our climate. A single experiment however, cannot be conclusive, but in the near future, when the plots at the Experimental Farm become systematised, this work will be carried out to a greater extent.

A third trial was conducted with the "Dreadnought" variety; its object was to establish the rate of sowing required when wheat it grown in hills. This method of sowing is chiefly adopted in Gozo. The results were as follows :—

| Plot. | No. of seed in plot. | Production per tumolo. |
|---|---|---|
| A. ... ... ... ... ... | 7 | 13.5 |
| B. ... ... ... ... ... | 14 | 23.6 |
| C. ... ... ... ... ... | 21 | 23.6 |

This trial shows that sowing more than 14 seeds per hill is useless. Our farmers usually sow about twenty seeds per hill which means a waste of one third of the seed used.

Along the same plot two other plots were laid out, one plot being sown broadcast and the other with seed sown in drills. While the production in the former plot was 17 tumoli per tumolo, in the latter plot, production amounted to 22.3 tumoli.

*Experimental Wheat plots in private farms.*

These experiments were conducted for three reasons :—

a) To test on a large scale the three varieties of wheat introduced last year, viz : Cappelli, Virgilio and Mentana, which proved to be very productive after a similar trial had been made at the Experimental Farm. The test was also meant to observe their behaviour in different kinds of soils.

b) To compare the yields of manured and untreated plots. In the manured plots two experiments were made (1) where all nitrogen fertilizer was distributed before sowing (2) and where one half of the nitrogen was distributed at the time of sowing and the remaining half was spread in increasing doses every fortnight, starting from January.

c) To instruct farmers on modern methods of wheat growing.

For this purpose plots were selected in different parts of Malta and Gozo in order to give an opportunity to the farmers of the district to compare their method with the new one.

The plots were dressed with slightly different doses of artificial manure, depending on the stage of rotation of each particular plot of land; in this way an attempt was made to raise the fertility of all plots to a common level. All wheat of the experimental plots was sown in drills, and that of the control plots was, in the usual way, hand sown. Also the quantity of seed in the experimental plots was 10% more than that usually adopted, while in the case of Mentana wheat the percentage was increased to 20%, as this variety requires thick sowing.

The experimental plots were hoed, every time it become necessary, this hoeing could only be possible in wheat sown in drills. All the wheat in the experimental plots was thrashed with a hand thrashing machine, in order to control the production of the plots under experiment and at the same time to show farmers a portable type of hand thrashing machine, which could be used on their farms with advantage, thus doing away with a method which has long been discarded in countries where modern agricultural implements are used.

This year the wheat crop was very bad, the reason being that it was first damaged by persistent rains and drought subsequently followed, while there was no rain during the critical growing period of the wheat, which last cause was chiefly instrumental in the reduced yield. Notwithstanding these disadvantages, the new varieties tested in the control plots, i.e. in the plots cultivated by the farmers in their usual method, the yield per unit area was greater than that of other plots in the same districts sown with the old varieties. Farmers appreciated the new varieties and many called at the Experimental Farm to buy the seed for sowing.

With the exception of a single plot due probably to a mistake on the part of the farmer when measuring the wheat control plot, all experimental wheat plots showed an increase in yield from one mondello to five tumoli and two mondelli in Malta and an increase from one tumoli and three mondelli to five tumoli and one mondello in Gozo. Also a slight increase in the production of wheat in the Experimental plots could not be recorded as the thrashing machine always leaves a small percentage of wheat in the ears. While the drought, as is generally the case, was more felt in the plots dressed with artificial fertilizers than in the plots not so treated.

| No. of plot | Variety of Wheat | Locality of plot under experiment | District | Area of plot cultivated by farmer | | Date of sowing | | Date of harvesting | Rotation followed |
|---|---|---|---|---|---|---|---|---|---|
| | | | | As directed | As usual | Usual date | Actual date | | |
| | | | | | MALTA. | | | | |
| 1 | Cappelli | Ta-Madre | Żabbar | 1 Tumolo | 3 Mond. | 2nd Nov. | 8th Nov. | 13th June | 1st year. Spring potatoes and vegitable marrows.<br>2nd year. Broad beans. |
| 2 | Cappelli | San Martin | Żebbuġ | Do. | 1 Tum. | 5th Nov. | 5th Nov. | 16th June | 1st year. Spring & winter potatoes<br>2nd year. Cumin. |
| 3 | Virgilio | Bubaqra | Żurrieq | Do. | 3 Mond. | from 2nd Nov. onwards | 7th Nov. | 26th June | 1st year. Spring & winter potatoes<br>2nd year. Onions. |
| 4 | Cappelli | Tal-ġnien | Mqabba | Do. | 1 Tum. | 25th Nov. | 14th Nov. | 25th June | 1st year. Spring & winter potatoes. |
| 5 | Virgilio | Ta' Sliba | Siġġiewi | Do. | Do. | 8th Nov. | 5th Nov. | 27th June | 1st year. Spring & winter potatoes.<br>2nd year. Tomatoes. |
| * 6 | Mentana | Ta' Bellu | Siġġiewi | Do. | — | 8th Nov. | 12th Nov. | 27th June | 1st year. Couliflower & tomatoes.<br>2nd year. Onions. |
| 7 | Mentana | Il-Fiddien | Rabat | Do. | — | 18th Dec. | 10th Dec. | 3rd July | 1st year. Potatoes and tomatoes. |
| 8 | Cappelli | Do. | Do. | Do. | — | Do. | Do. | 2nd July | Do. do. |
| 9 | Virgilio | Do. | Do. | Do. | — | Do. | Do. | 2nd July | Do. do. |
| 10 | Cappelli | Il-Pwales | St. Paul's Bay | Do. | 1 Tum. | 2nd Nov. | 6th Nov. | 15th July | 1st year. Potatoes.<br>2nd year. Wheat.<br>3rd year. Clover. |
| *11 | Virgilio | Burmarrat | Do. | Do. | Do. | 15th Nov. | 11th Nov. | 3rd July | 1st year. Melons. |
| *12 | Cappelli | Budaq ta' Sajda | Naxxar | Do. | Do. | 25th Nov. | 20th Nov. | 15th July | 1st year, Spring & winter potatoes.<br>2nd year. Wheat. |
| *13 | Cappelli | Il-Kawrija | Safi | Do. | Do. | 8th Nov. | 15th Nov. | 17th July | 1st year. Spring & winter potatoes<br>2nd year. Onions.<br>3rd year. Clover. |
| *14 | Virgilio | Il-Miżieb | Mellieħa | Do. | Do. | 25th Nov. | 13th Nov. | 13th July | 1st year. Potatoes.<br>2nd year. Onions.<br>3rd year. Wheat, peas and beans. |
| *15 | Cappelli | Tal-Ghadir | Żurrieq | Do. | Do. | 15th Nov. | 17th Nov. | 25th July | 1st year. Spring & winter potatoes.<br>2nd year. Barley.<br>3rd year. Clover. |
| 16 | Virgilio | Ta' Orland | Żejtun | Do. | 4 Mond. | 25th Nov. | 8th Nov. | 18th July | 1st year. Spring & winterpotatoes.<br>2nd year. Onions. |
| | | | | | GOZO. | | | | |
| * 1 | Virgilio | Tal-Kanun | Nadur | 1 Tumolo | — | 25th Nov. | 16th Nov. | 8th July | 1st year. Green fodder, melons and bitter vetches.<br>2nd year. Wheat.<br>3rd year. Clover. |
| 2 | Virgilio | Tal-Iskof | Nadur | Do. | -- | 15th Nov. | 16th Nov. | 8th July | 1st year. Wheat.<br>2nd year. Clover. |
| 3 | Cappel i | Ta' Bigia | Għarb | Do. | — | 15th Nov. | 12th Nov. | 11th July | 1st year. Green fodder & melons. |
| * 4 | Virgilio | Tax-Xewka | Kercem | Do. | 5 Mond. | 20th Nov. | 13th Nov. | 6th July | Begining of rotation. |
| * 5 | Cappelli | Tal-Barmil | Xewkija | Do. | 1 Tum. | 20th Nov. | 13th Nov. | 10th July | 1st year. Spring potatoes.<br>2nd year. Green fodder.<br>3rd year. Clover. |
| * 6 | Virgilio | Tal-Imbit | Victoria | Do. | 4 Mond. | 20th Nov. | 12th Nov. | 12th July | 1st year. Melons. |
| 7 | Cappelli | Ta' Irgħila | Victoria | Do. | 1 Tum. | 15th Nov. | 15th Nov. | 9th July | 1st year. Wheat.<br>2nd year. Clover. |
| * 8 | Cappelli | Ix-Xaghri tal-qortol | Xghara | Do. | 3 Mond. | 10th Nov. | 9th Nov. | 10th July | Beginning of rotation. |
| 9 | Cappelli | Il-Qlaigha | Zebbuġ | Do. | 4 Mond. | 1st Nov. | 7th Nov. | 11th July | 1st year. Melons. |
| 10 | Cappelli | Tal-beċċuna | Nadur | Do. | — | 15th Nov. | 10th Dec. | 9th July | 1st year. Wheat.<br>2nd year. Clover. |
| | | | | | COMINO. | | | | |
| 11 | Cappelli | — | Comino | 1 Tumolo | 5½ Mond. | 25th Nov. | 10th Dec. | 27th June | 1st year. Peas. |

In plots marked with an asterisk one-half of the artificial fertilizers were spread every fortnight in increasing doses starting from January.

| Quality of soil | Exposure of plot | Artificial fertilizers in rotoli per tumolo | Production in plot under experiment | | Production in plot cultivated by farmer | Difference in Production | Remarks |
|---|---|---|---|---|---|---|---|
| | | | Kantars p. Tumola | Tumoli per Tumoli | Tumolo per Tumolo | | |
| Red soil | — | 35 Sulphate of ammonia<br>95 Superphosphates | 1·08 | 9 Tum.<br>1 Mond. | 8 Tum.<br>3 Mond. | + 4 Mond. | |
| Do. | — | 40 Sulphate of ammonia<br>10 Sulphate of potash<br>95 Superphosphates | 1·11 | 9 Tum. | 4 Tum.<br>4 Mond. | + 4 Tum.<br>2 Mond. | |
| Do. | E. | 30 Sulphate of ammonia<br>95 Superphosphates | 2·16 | 12 Tum. | 6 Tum.<br>4 Mond. | + 5 Tum.<br>2 Mond. | |
| Loamy | N. W. | 30 Sulphate of ammonia<br>20 Sulphate of potash<br>95 Superphosphates | 1·39 | 7 Tum.<br>3 Mond. | 7 Tum.<br>2 Mond. | + 1 Mond. | |
| Red soil | S. E. | 30 Sulphate of ammonia<br>10 Sulphate of potash<br>95 Superphosphates | 1·47 | 8 Tum.<br>1 Mond. | 6 Tum.<br>2 Mond. | + 1 Tum.<br>5 Mond. | |
| Clayey | N. | 35 Sulphate of ammonia<br>20 Sulphate of potash<br>95 Superphosphates | 3·33 | 18 Tum.<br>3·m | — | — | |
| Do. | S. | 30 Sulphate of ammonia<br>15 Sulphate of potash<br>95 Superphosphates | 3·31 | 19 Tum.<br>3½ Mond. | — | — | |
| Do. | S. | Do. do. | 3·02 | 15 T.—5½M. | — | — | |
| Do. | S. | Do. do. | 3·31 | 19 T.—3½M. | — | — | |
| Red soil | N. | 35 Sulphate of ammonia<br>15 Sulphate of potash<br>95 Superphosphates | 1·50 | 8 Tum.<br>2 Mond. | 7 Tum.<br>5 Mond. | + 3 Mond. | |
| Clayey | — | 35 Sulphate of ammonia<br>20 Sulphate of potash<br>95 Superpbosphates | 2·07 | 11 Tum.<br>5 Mond. | 8 Tum.<br>2 Mond. | + 3 Tum.<br>3 Mond. | |
| Loamy | S. W. | 35 Sulphate of ammonia<br>20 Sulphate of potash<br>95 Superphosphates | 2·53 | 13 Tum.<br>4 Mond. | 9 Tum. | + 4 Tum.<br>4 Mond. | |
| Red soil | — | 35 Sulphate of ammonia<br>95 Superphosphates | 2·16 | 12 Tum.<br>2½ Mond. | 7 Tum.<br>4 Mond. | + 4 Tum.<br>3½ Mond. | |
| Do. | S. | 35 Sulphate of ammonia<br>95 Superphosphates | 2·24 | 13 Tum.<br>1 Mond. | 9 Tum. | + 4 Tum.<br>1 Mond. | |
| Do | — | 40 Sulphate of ammonia<br>15 Sulphate of potash<br>95 Superphosphates | 1·76 | 10 Tum.<br>2 Mond. | 7 Tum. | + 3 Tum.<br>2 Mond. | |
| Do. | S. W. | 35 Sulphate of ammonia<br>95 Superphosphates | 1·68 | 9 Tum.<br>5 Mond. | 6 Tum.<br>1½ Mond. | + 3 Tum.<br>3½ Mond. | |
| Clayey | N. | 35 Sulphate of ammonia<br>10 Sulphate of potash<br>95 Superphosphate | 3·72 | 20 Tum.<br>4 Mond. | — | — | Manured also with 150 baskets of dung equivalent to 18 kantars of dung p. tum. |
| Do. | N. | 35 Sulphare of ammonia<br>95 Superphosphate | 1·92 | 10 Tum.<br>4 Mond. | — | — | |
| Loamy | E. | 30 Sulphate of ammonia<br>10 Sulphate of potash<br>95 Superphosphate | 1·44 | 8 Tum. | — | — | |
| Clayey | — | 30 Sulphate of ammonia<br>15 Sulphate of potash<br>95 Superphosphate | 1·83 | 10 Tum.<br>4½ Mond. | 7 Tum.<br>1 Mond. | + 3 Tum.<br>3½ Mond. | Manured also with 220 baskets of dung equivalent to 26·40 kantars of dung per tumolo. |
| Do. | S. E. | 35 Sulphate of ammonia<br>20 Sulphate of potash<br>95 Superphosphate | 2·78 | 15 Tum. | 13 Tum.<br>3 Mond. | + 1 Tum.<br>3 Mond. | |
| Light Loamy | N. | 30 Sulphate of ammonia<br>10 Sulphate of potash<br>95 Superphosphate | 2·66 | 15 Tum.<br>1 Mond. | 10 Tum. | + 5 Tum<br>1 Mond. | |
| Clayey | N. W. | 30 Sulphate of ammonia<br>10 Sulphate of potash<br>95 Superphosphate | 2·09 | 11 Tum. | 14 Tum. | — 3 Tum. | |
| Red soil | N. E. | 20 Sulphate of ammonia<br>10 Sulphate of potash<br>95 Superphosphate | 1·62 | 9 Tum. | 7 Tum. | + 2 Tum. | Manured also with 200 baskets of dung equivalent to 24 kantars per tumolo. |
| Loamy | S. E. | 25 Sulphate of ammonia<br>10 Sulphate of potash<br>95 Superphosphate | 1·88 | 10 Tum.<br>1 Mond. | 7 Tum.<br>3 Mond. | + 2 Tum.<br>4 Mond. | |
| Do. | W. | 30 Sulphate of ammonia<br>20 Sulphate of potash<br>95 Superphosphate | 1·85 | 10 Tum. | — | — | |
| Red soil | E. | 30 Sulphate of ammonia<br>20 Sulphate of potash<br>95 Superphosphate | 1·41 | Tum | 6 Tum. | + 2 Tum. | |

*Tomatoes.*

A free sample of fish manure was obtained from England for the purpose of giving it a trial, with the twofold object of testing the fertilizing value of this manure and the efficiency of mulch papers "cartone asfaltato" in retaining humidity in the soil. The results are tabulated below :—

| No. of Plot | Area of Plot | Artificial manure per Tumolo | Production | Production per tumolo | Increase in production per tumolo with fish manure | Increase in production per tumolo in plots covered with mulch paper. | Remarks |
|---|---|---|---|---|---|---|---|
| | sq. ft. | Fish manure | Rotoli | Rotoli | Rotoli | Rotoli | |
| A | 3,240 | 70 rotoli | 472 | 1,613 | 125 | 450 | Soil covered with mulch paper |
| | | Artificial manure | | | | | |
| B | 2,880 | 70 rotoli Superphosphates<br>35 „ Potash<br>35 „ Ammonia | 378 | 1,588 | — | 643 | do. |
| | | Fish manure | | | | | |
| C | 8,040 | 70 rotoli | 771 | 1,163 | 218 | — | Soil not covered |
| | | Artificial manure | | | | | |
| D | 4,800 | 70 rotoli Superphosphates<br>35 „ Potash<br>35 „ Ammonia | 375 | 945 | — | — | do. |

In plots A and C where fish manure was used productions were greater.

This trial shows also the importance of having recourse to the use of mulch paper which is widely used elsewhere where horticulture becomes possible to a certain extent without irrigation. The use of the paper increases its importance not only in exceptionally dry years, but even in normal ones, because, as a rule, the rainy season finishes in February. Plots A and B show considerable increase in yield when compared with plot C. D. and these results, though they cannot be considered conclusive, make it advisable to carry out further trials with mulch paper.

A second trial was conducted in the Boschetto Gardens to test the utility of mulch paper. Accordingly two plots measuring one tumolo were sown with tomatoes, one plot being covered with mulch paper. The yield in the covered plot exceeded the yield in the control plot by 11.40 kantars.

*Pig Rearing.*

The number of pigs kept at the Experimental Farm is the following :—

| | Large White | Middle White | Wessex Saddleback | Berkshires. |
|---|---|---|---|---|
| Boars ... ... | 2 | 1 | 1 | 1 |
| Sows ... ... | 3 | 2 | 2 | 2 |
| Sucklings ... ... | — | 19 | — | — |

Also three additional boars were stationed at Musta, Żejtun and St. Paul's Bay.

The service boars, as last year, were available to all those who cared to have their sows served by these boars. When comparing the number of services of the previous year to those of this year, it will be noticed that there is a general decrease in the number of sows served in almost all districts, the most notable being Żebbuġ and Żabbar, with a decrease of 26 and 29 services respectively. Increases were accounted for in Naxaro, Mosta and St. Paul's Bay, due no doubt to the fact that a Government boar was available in the district or in the vicinity.

Boar Services in Malta between 1st November 1934 to 31st October 1935.

| | Berk.—2 | Berk.—6 | Berk.—7 | L. W.—8 | M. W.—9 | W. S.—10 | Berk.—21 | Berks.—23 | M. W.—45 | M. W.—46 | Berk.—27 | W. S.—52 | L. W.—55 | L. W.—56 | L. W.—57 | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Għaxaq ... ... ... | ... | ... | ... | ... | ... | ... | ... | 1 | ... | ... | ... | ... | ... | 1 | ... | 2 |
| Balzan ... ... ... | ... | 1 | 2 | 1 | 5 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 9 |
| Birkirkara ... ... | ... | 1 | ... | 1 | ... | 4 | ... | ... | ... | . | ... | ... | ... | ... | 1 | 7 |
| Birżebbuġa ... ... | ... | ... | ... | 1 | 2 | ... | ... | .. | ... | ... | ... | ... | ... | 1 | ... | 4 |
| Kalkara ... ... ... | ... | ... | ... | ... | 1 | 1 | ... | ... | ... | ... | ... | ... | ... | ... | ... | 2 |
| Qormi ... ... ... | .. | 5 | 6 | 11 | 9 | 4 | ... | 1 | 2 | ... | ... | 2 | ... | 1 | 2 | 43 |
| Għargħur... ... ... | ... | 2 | ... | ... | 1 | 1 | ... | ... | ... | 8 | ... | ... | ... | ... | 1 | 13 |
| Govt. Experimental Farm ... | 6 | ... | 14 | 6 | ... | 5 | ... | ... | ... | 2 | ... | ... | ... | 1 | ... | 34 |
| Hamrun ... ... ... | ... | ... | 1 | ... | ... | 1 | ... | ... | ... | 2 | ... | ... | ... | ... | 1 | 16 |
| Kirkop ... ... ... | ... | 1 | ... | ... | ... | 2 | ... | 1 | ... | ... | ... | ... | ... | ... | ... | 4 |
| Qrendi ... ... ... | ... | 1 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 1 | ... | ... | 2 |
| Lija ... ... ... | ... | ... | 1 | 1 | ... | ... | ... | ... | ... | ... | ... | 1 | ... | ... | ... | 3 |
| Luqa ... ... ... | ... | 2 | ... | .. | 3 | ... | ... | ... | ... | ... | ... | ... | ... | 1 | ... | 6 |
| Marsa ... ... ... | ... | ... | ... | 5 | 3 | ... | ... | 1 | ... | ... | ... | ... | ... | ... | 1 | 10 |
| Mqabba ... ... ... | ... | ... | ... | ... | 1 | ... | ... | ... | ... | ... | ... | ... | ... | 1 | ... | 2 |
| Msida ... ... ... | ... | 3 | 2 | 4 | 3 | 1 | ... | ... | ... | 2 | ... | ... | ... | ... | 1 | 16 |
| Mosta ... ... ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 32 | ... | ... | ... | ... | ... | 32 |
| Naxxar ... ... ... | ... | 1 | 1 | ... | 1 | ... | ... | ... | ... | 20 | ... | ... | ... | ... | ... | 23 |
| Pawla ... ... ... | ... | 1 | ... | 1 | 2 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 4 |
| Rabat ... ... ... | ... | 2 | 2 | 1 | 1 | 2 | 1 | ... | ... | ... | ... | ... | 1 | 1 | 3 | 14 |
| Siġġiewi ... ... ... | ... | ... | 1 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 1 |
| San Ġiljan ... ... | ... | 1 | ... | 2 | 1 | 2 | ... | ... | ... | 2 | ... | ... | ... | ... | ... | 8 |
| San Pawl il-Baħar ... | ... | 2 | 1 | ... | ... | ... | ... | ... | ... | ... | 43 | ... | ... | ... | ... | 46 |
| Tarxien ... ... ... | ... | 3 | 1 | 4 | 2 | 2 | ... | 1 | 2 | ... | ... | 1 | ... | 3 | 1 | 20 |
| Żabbar ... ... ... | ... | 4 | 1 | ... | 2 | 2 | 1 | ... | ... | ... | ... | ... | ... | ... | ... | 10 |
| Żebbuġ ... ... ... | ... | 5 | 1 | ... | 5 | 1 | ... | 1 | ... | ... | ... | 1 | ... | 1 | 1 | 16 |
| Żejtun ... ... ... | ... | 1 | 1 | 1 | 2 | ... | 4 | 1 | 2 | ... | ... | 2 | ... | 1 | ... | 15 |
| Żurrieq ... ... ... | ... | 2 | ... | ... | 1 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 3 |
| | 6 | 38 | 35 | 39 | 44 | 29 | 6 | 7 | 6 | 66 | 43 | 8 | 2 | 12 | 11 | 352 |

The services performed by each breed were :—

| | |
|---|---|
| Berkshire ... ... ... ... ... | 135 |
| Middle White ... ... ... ... | 116 |
| Large White ... ... ... ... ... | 64 |
| Wessex Saddleback ... ... ... ... | 37 |

One of the Middle Whites had the greatest number of services, namely, 66.

Owing to diseases prevailing in the country and the fact that sows were brought for service to the Experimental Farm an outbreak of disease unfortunately occurred in May. Immediate isolation of infected stock, application of curative vaccines to sick pigs and preventive ones to healthy pigs, scrupulous disinfection carried out daily helped to check the disease.

Considering the seriousness of the disease it may be stated that the losses were reduced to a minimum. On the 20th September service for pure breed sows was resumed on condition that the owner of a sow advised us beforehand so that officials of this branch could visit the farm and sow as well, to ascertain themselves that there were no traces of disease and to grant the relative permit.

Almost simultaneously an outbreak of swine erysipelas which occurred in Gozo, compelled us to stop service to avoid any possible infection of the Government boars. Although every precaution was taken to keep them isolated, three boars were lost.

An auction sale of Berkshire pigs reared at the Experimental Farm was held on the 22nd January, 1934. The sale was widely advertised and circulars were sent to well known breeders in Malta and Gozo. The pigs sold consisted of 1 sow (in-pig), three gilts, 8 male weaners and 8 female weaners. A good number of farmers were present at the auction and the attendance would have been much more had the Gozitan farmers not been prevented from being present. Owing to very rough sea on that day, Gozo boats did not ply between the two islands. Bidding was brisk and the prices realised considering the pig crisis were fairly good and showed that the farmers fully

appreciated the stock offered for sale. At future sales it is the intention to sell only matured stock, to guard against the local practice of mating gilts at a very early age.

At present the number of service boars in Gozo is six, i.e. two less than there was last year although four other boars were sent there. These were of the following breeds :—2 Berkshires, 1 Large White and 1 Wessex Saddleback. Three of them were located at Nadur and one at Kerċem. As three of the boars kept at Gozo died and the three remaining were returned to Malta, either because they were not good for service or else because the keeper did not comply with the conditions laid down for their upkeep, the number of boars remaining was 2 less when compared with that of the previous year.

Comparing last year's number of services, tabulated below, with that of this year, taking of course into account the period of service, it will be seen that the number of services was increased in the case of five boars but decreased in the case of three.

The number of sows served by the Government boars decreased in the two chief pig rearing districts, viz : Nadur and Kaċċia, Gozo, while it slightly increased in other centres. The preference for the white boars is giving way particularly because of the performance of the Wessex Saddleback, which is much appreciated by the farmers owing to the exceptional healthy cross breed litters obtained. In fact this boar records the highest number of services, 78, which clearly proves that the prejudice against coloured pigs is being dispelled.

Boar service in Gozo between 31st August, 1934, to 30th August, 1935.

| | Berk.—2 | Berks.—3 | M. W.—13 | L. W.—11 | L. W.—12 | W. S.—15 | M. W.—14 | Berks.—1 | Berks.—19 | L. W.—55 | W. S.—52 | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Għarb ... ... | 2 | ... | ... | ... | 4 | 13 | ... | ... | ... | ... | 2 | 21 |
| Għajnsielem ... | ... | ... | 2 | 5 | ... | 11 | ... | 7 | 3 | 3 | ... | 31 |
| Qala ... ... | ... | ... | 7 | 9 | ... | 3 | ... | 10 | 7 | 3 | ... | 39 |
| Kerċem ... ... | ... | ... | ... | ... | 3 | 4 | 2 | ... | ... | ... | 2 | 11 |
| Xagħra ... ... | ... | 38 | ... | ... | 48 | ... | ... | ... | ... | ... | ... | 86 |
| Sannat .. ... | 2 | ... | ... | 5 | ... | 4 | ... | ... | ... | ... | ... | 11 |
| Nadur ... ... | ... | ... | 18 | 49 | ... | .. | ... | 33 | 48 | 12 | ... | 160 |
| Victoria ... ... | 19 | ... | ... | ... | 15 | 9 | ... | ... | ... | ... | ... | 43 |
| Xewkija ... ... | 3 | ... | ... | 5 | 2 | 34 | ... | ... | ... | ... | ... | 44 |
| Żebbuġ ... ... | 5 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 5 |
| | 31 | 38 | 27 | 73 | 72 | 78 | 2 | 50 | 58 | 18 | 4 | 451 |

REMARKS.

Berks Boar No. 2 returned to Malta, 16th June, 1935.
Middle White No. 13 returned to Malta, 25th March, 1935.
Large White No. 11 died, 16th June, 1935.
Middle White No. 14 returned to Malta, 25th March, 1935.
Berkshire No. 1 died, 29th June, 1935.
Berkshire No. 19 died, 13th June, 1935.

In spite of the fact that farmers are rearing pigs at a loss, they continue in the hope that market prices will improve. In the meantime however, the market continues to be flooded with the result that prices still remain low. Lack of marketing organisation and cooperation amongst the farmers are the main contributing causes for the unsatisfactory state of the pig industry. It would appear that fresh outlets are now required to absorb the large number of pigs produced in these islands and attention might well be given to :—

(a) The establishment of a baconry
(b) Lard factory and protective duty on lard

*Poultry rearing.*

The poultry section consists of three pure breeds — an egg breed and two dual purpose breeds — and of the local mongrels. The pens to house these breeds and the chickens bred from them were costructed and the internal fitting completed. However, as the number of pens is not sufficient to carry the head of stock desired, it is proposed to extend this section further.

The number of Maltese black mongrels in November of last year was increased up to 66 and the number of cocks was brought up to three. After trapnesting for a few months, the number of hens was reduced to twenty and two cocks were removed. The chickens reared numbered 320 pullets and 100 cockerels including 39 pullets and cockerels from trapnested hens with a satisfactory egg production record. As might be expected the establishment of a new breed necessitates heavy culling either because they do not possess the characteritics required of the new breed, or else because they prove to be indifferent layers.

The pure breeds imported in February of this year are S. C. White Leghorn, Rhode Island Reds and Buff Rocks. Owing to the tardy arrival of the adult birds from England, a late start was made with chickens from these breeds, the number of pullets and cockerels raised from the aforesaid birds being somewhat limited. This was not the case with the mongrel breeds, however, as a start was made to rear chicks of the local breed in January. The number was as follows:—

| | | |
|---|---|---|
| S. C. White Leghorn ... ... ... | 65 | 70 |
| Rhode Island Red ... ... ... ... | 129 | 105 |
| Buff Rocks ... ... ... ... ... | 51 | 18 |

As might be expected, the mortality of chickens of the local breed was much less than that of the imported breeds. Several reasons contributed to such a mortality, the chief being a change of environment, different feeding and management. Next year it is expected that better results will be obtained during rearing, the adult stock and their progeny will then be acclimatised. However, the mortality in both cases was low, and on the whole very satisfactory when compared with the mortality of chickens on local farms.

The following number of cockerels will be available for distribution in next January: Black mongrels 640, S. C. White Leghorns 65, Rhode Island Reds 79, Buff Rocks 10. Selected cockerels are sold to farmers with the object of increasing the egg laying capacity of the flock.

It is proposed to sell a small proportion of these to gentlemen farmers and the rest to bona fide farmers.

Hatching eggs will be on sale from January onwards; at the beginning only a few eggs will be available, as most of the eggs will be required on the Farm for hatching. Later on a much greater number will be sold. Preference will be given to bona fide farmers who are prepared to improve their methods of management.

Concentrated foods which cannot be obtained locally, which are required in a balanced poultry ration, have been on sale at cost price at the Farm. As only a few poultry keepers availed themsevles of this opportunity, at first a complete mixture was made, which proved to be more popular, but mainly however, amongst fanciers.

Mortality of fowls is due mainly to two diseases: Fowl Pox and Cholera. To the fowl pox vaccine introduoed last year, a cholera vaccine has been added this year. Fowls are inoculated against fowl pox generally from September onwards, when they are most likely to contract disease, and they are vaccinated against cholera during the summer months. The work done to stamp or at least to check these diseases which cause considerable loss to all farmers is tabulated below.

| Location | No. of fowls vaccinated for | | | Location | No. of fowls vaccinated for | | |
|---|---|---|---|---|---|---|---|
| | Fowl Pox | Fowl Cholera | Total | | Fowl Pox | Fowl Cholera | Total |
| MALTA. | | | | | | | |
| Għaxiaq ... ... | 160 | — | 160 | St. Julians ... ... | 142 | 448 | 590 |
| Birkirkara ... ... | 196 | 14 | 410 | St. Paul's Bay... ... | 132 | — | 132 |
| Birżebbuġa ... ... | 42 | — | 42 | Żurieq ... ... | 353 | — | 353 |
| Qormi .. ... ... | — | 31 | 51 | Żabbar ... .. | 114 | — | 114 |
| Għargħur ... ... | 50 | — | 50 | | | | |
| Gudja ... ... ... | 140 | 46 | 186 | Comino ... ... | 292 | — | 292 |
| Hamrun ... ... | 150 | — | 150 | | | | |
| Qrendi ... ... ... | 89 | 95 | 184 | | | | |
| Lija ... ... ... | 101 | — | 101 | GOZO. | | | |
| Luqa ... ... ... | 1,031 | 37 | 1,068 | Għarb ... ... | 686 | 132 | 818 |
| Marsa ... ... ... | 20 | — | 20 | Qala... ... ... | 69 | — | 69 |
| Marsaxlokk ... ... | 119 | — | 119 | Xagħra ... ... | 119 | 45 | 164 |
| Mellieħa ... ... | 152 | — | 152 | Kerċem ... ... | 731 | 32 | 763 |
| Msida ... ... ... | 130 | — | 130 | Marsalforn ... ... | 18 | — | 18 |
| Naxxar ... ... | 83 | — | 83 | Nadur ... ... | 172 | 30 | 202 |
| Pawla ... ... ... | 37 | — | 37 | Sannat ... ... | — | 51 | 51 |
| Pietà ... ... ... | 341 | 50 | 391 | Victoria ... ... | 499 | 93 | 592 |
| Safi ... ... ... | 176 | — | 176 | Xewkija ... ... | 119 | 81 | 200 |
| Sigġiewi ... | 341 | 59 | 400 | Żebbuġ ... ... | 30 | — | 30 |
| Sliema... ... ... | 214 | 52 | 266 | | | | |
| St. Andrews ... ... | 320 | 46 | 366 | Total ... | 7,368 | 1,342 | 8,710 |

Free service is till available for persons who wish to have their poultry vaccinated as a preventive against fowl pox and cholera. A greater demand now exists for this service and Casal Luqa heads the list. Local farmers are still very conservative and still do not fully realise the benefit of vaccination even though no charge is made.

*Donkeys.*

The donkeys kept at the Stud Station consist of two jacks, two young jacks and four jennies, one of which has been transferred to Boschetto. The main purpose for which they are kept viz : mule getting is not now appreciated as the number of jennies served decreases from year to year. However, the donkeys are mostly utilised for light work in the field and for the transport of vegetables to the market, and other material on the Farm.

*Milk Cows and Bulls.*

In March, two cows and four bulls of the Swiss breed were imported. These cows were introduced with the object of replacing in part our local breed which is not a good milker ; the bulls are kept to maintain the Swiss breed pure and to obtain crosses with the local breed. These crosses will be closely studied and if the results are encouraging, a greater number of bulls will be utilised for service. The Swiss breed is very hardy being (a) a fair milk producer, (b) suitable for field work and (c) capable of being fattened in a short time. Moreover its adaptability to all climatic conditions warrants a trial being made.

One of the cows kept at the Experimental Farm has since produced a bull-calf. Two of the bulls are stationed at Gozo, one at Kaċċja and one at Kerċem, another was kept in the Stud Station and a fourth at Rabat, Malta. Several services were made by the bulls kept in Malta. As it is the custom in Gozo for cows to calve between August and November, only two services were made.

Next year it is proposed to introduce one or two British Breeds, with the object of propagating them, if their reaction to their new environment and feeding, as well as their crosses, prove to be satisfactory.

*Farm Implements.*

The newly imported garden tractor has done good work, and it proves very valuable when used in our fields, which commonly are small, have shallow soil and have acute angled boundary walls. Demonstrations with the mould board plough were made and a

few farmers made requests, which were always granted, to make a trial with these ploughs on their own farms.

*Analysis of Organic Manure.*

Samples of organic manure, collected from different parts of the Island as shown below, were kindly analysed by the Imperial Bureau of Soil Science, and the report received is annexed. The Department is greatly indebted to the Bureau for the assistance so readily given.

| Locality whence manure was collected | Kind of manure |
|---|---|
| 1. Marsaxlokk ... ... | Fresh cow dung, goat, sheep, swine poultry and rabbit manure. |
| 2. Żabbar ... ... | House refuse about 8 months old. |
| 3. Birżebbuġa ... ... | House refuse and manure of farm animals (horses goats and poultry). |
| 4. Żurrieq ... ... | Farm animals manure (horses, goats, poultry and rabbits). |
| 5. Gudja ... ... | House refuse and manure of farm animals (horses, sheep, and poultry). |
| 6. Siġġiewi ... ... | Farm animals (horses, goats, sheep and poultry) and small quantities of cow manure). |
| 7. Luqa ... ... | Fresh cow dung. |
| 8. Żebbuġ ... ... | House refuse in advanced stage of fermentation mixed with dung of farm animals. |
| 9. Attard ... ... | House refuse mixed with dung of farm animals. It contained also saw-dust. |
| 10. Birkirkara ... ... | Farm animals (cow, horses, sheep, poultry and rabbits). |
| 11. Għargħur ... ... | Do. do. do. |
| 12. Qormi ... ... | Well dried manure of fattening bulls. |
| 13. Mosta ... ... | Farm animals with bedding of saw-dust and algae. |
| 14. Naxxar ... ... | Farm animals. |
| 15. St. Paul's Bay ... | Farm animals mostly sheep and goats. |
| 16. Mġarr ... ... | Farm animals. |
| 17. Mellieħa ... ... | Farm animals. Well dried manure of fattening bulls. |
| 18. Għajn Tuffieħa ... | Farm animals, mostly goat manure. |
| 19. Rabat ... ... | Farm animals, mostly cows, pigs and goats. |
| 20. Rabat ... ... | House refuse. |

*Propaganda Work.*

It has been arranged to bring farmers on Sunday afternoons to visit the Experi hental Farm, at Government's expense to show them the work carried out in all details, especially as to the hygiene and feeding of livestock. 1,441 farmers from Malta and Gozo visited the Farm, whilst several of them called again, later on, to seek advice. As last year, advice was freely given on all matters concerning livestock and field crops and in many instances, officials of this Branch went on private farms to make suggestions and to help the farmers to overcome difficulties which they encountered. They greatly appreciated such services.

Just to impress on farmers the importance and also to induce them to keep their livestock in properly built and hygienic houses, a pig and poultry competition has been proposed. Applications to join expired on the 30th September, the competition will start on the 1st October and will end on the 15th March. Malta and Gozo were divided in nine districts, and for each district there is a first, second and third prize.

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IMPERIAL INSTITUTE,
South Kensington,
London S.W.7.

**Report on Manures from Malta.**

The twenty samples of manure which form the subject of the present report were forwarded to the Director, Rothamated Experimental Station, Harpenden, by the Superintendent of Agriculture, Valletta, Malta, and are referred to in his letter I.—418/34 of the 11th October, 1934. The samples were transmitted by the Rothamsted Experimental Station to the Imperial Institute for examination.

Partial chemical analysis of each sample was desired in order to determine the percentages of moisture, nitrogen, phosphoric acid and potash.

*Description of samples.*

The descriptions of the samples are as follows:—

**No. 1.** Brown, decomposed vegetable matter, with straw, plant stems, wood-shavings etc., and fragments of rock. Weight 5¼ lb.

**No. 2.** A very heterogeneous sample consisting of vegetable matter, dung, wood, paper, rags, bones, feathers, coal, rock, etc. The appearance of the sample suggested that it probably consisted of household refuse or roadsweepings. Weight 6 lb.

**No. 3.** Very similar to No. 2. Weight 4½lb.

**No. 4.** Brown, decomposed vegetable matter, with straw, plant stems, and a few feathers, seed-pods and rock fragments. Weight 4½ lb.

**No. 5.** Rather damp, brown, decomposed vegetable matter, with straw, plant stems, and a few fragments of rag, paper, coal, rock etc. Weight 6 lb.

**No. 6.** Brown, decomposed vegetable matter, with plant stems, and a few fragments of paper, wood-shavings, rag and rock. Wegiht 6¼ lb.

**No. 7.** Rather wet, dark brown, decomposed vegetable matter, with a few rock fragments. Weight 6 lb.

**No. 8.** Brown, decomposed vegetable matter, with plant stems, rag, paper and a few rock fragments. Weight 6¼ lb.

**No. 9.** Wet, brown, decomposed vegetable matter, with plant stems and fragments of wood and rock. Weight 7 lb.

**No. 10.** Brown vegetable matter, with a large proportion of woody stems, straw etc., and a few fragment of rock. Weight 4 lb.

**No. 11.** Brown vegetable matter with a large proportion of woody stems, straw, etc., and a few fragments or rock. Weight 4¼ lb.

**No. 12.** Brown vegetable matter, with straw, stems, dung and rock fragments. Weight 4¾ lb.

**No. 13.** Brown vegetable matter, mainly straw, stems and other fibrous material, together with a few rock fragments. Weight 5½ lb.

**No. 14.** Dark brown, decomposed vegetable matter, with a little straw, wood-shavings and rock. Weight 7½ lb.

**No. 15.** Brown, decomposed vegetable matter, with a large proportion of dung, and a few fragments of straw, stems and rock. Weight 6 lb.

**No. 16.** Brown, decomposed vegetable matter, together with stems, straw and fragments of wood, paper, glass, bones, rock etc. Weight 6¾ lb.

**No. 17.** Dark brown, decomposed vegetable matter, with a few fragment of stems, straw and rock. Weight 6 lb.

**No. 18.** Brown, decomposed vegetable matter, with stems, straw and a few fragments of wood and rock. Weight 5¾ lb.

**No. 19.** Brown, decomposed vegetable matter, with a little straw, stem and rock. Weight 7 lb.

**No. 20.** Brown vegetable matter, with a large proportion of stems, straw and other woody and fibrous material, together with a few rock fragments. Weight 4½ lb. (The container of this sample was slightly damaged in transit).

*Results of Examination.*

Owing to the heterogeneous character of the materials, sampling was difficult, but portions which may be regarded as representing as closely as practicable the average composition of the manures were submitted to analysis, with the results shown in the following table:—

## COMPOSITION OF MANURES.

### 1. Results expressed as percentages of material as received.

| Sample No. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Moisture at 105 C. | 68·2 | 7·1 | 24·3 | 24·5 | 30·2 | 28·1 | 56·4 | 30·9 | 64·4 | 11·0 | 22·2 | 11·4 | 20·3 | 41·8 | 23·0 | 21·1 | 25·9 | 29·7 | 34·7 | 22·6* |
| Phosphoric acid P 205 | 0·7 | 0·6 | 0·9 | 1·0 | 0·7 | 1·1 | 0·8 | 1·0 | 0·7 | 1·6 | 1·7 | 1·6 | 1·1 | 1·6 | 2·2 | 2·3 | 2·7 | 2·2 | 1·1 | 1·5 |
| Potash, $K_2O$ | 1·4 | 0·5 | 1·3 | 1·7 | 0·8 | 1·2 | 1·3 | 1·5 | 1·1 | 2·6 | 2·9 | 2·8 | 1·7 | 1·0 | 2·3 | 2·3 | 3·0 | 2·8 | 3·0 | 1·7 |
| Nitrogen, N | 1·1 | 0·8 | 1·2 | 1·6 | 1·0 | 1·0 | 1·5 | 1·2 | 0·7 | 2·2 | 1·5 | 2·1 | 1·1 | 1·1 | 2·2 | 1·6 | 1·9 | 1·6 | 1·5 | 1·2 |

* This figure may not represent the moisture content of the sample as collected the container being somewhat damaged.



### 2. Results expressed as percentages of moisture-free material.

| Sample Number | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | Rothamsted average |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Phosphoric acid, P205... | 2·3 | 0·6 | 1·2 | 1·3 | 1·0 | 1·5 | 1·8 | 1·5 | 2·0 | 1·8 | 2·2 | 1·8 | 1·4 | 2·7 | 2·9 | 2·9 | 3·6 | 3·1 | 1·7 | 1·9 | 1·0 |
| Potash, $K_2O$ ... ... | 4·6 | 0·5 | 1·8 | 2·3 | 1·1 | 1·7 | 3·0 | 2·2 | 3·1 | 2·9 | 3·8 | 3·2 | 2·1 | 1·7 | 3·0 | 2·9 | 4·0 | 4·0 | 4·6 | 2·2 | 1·3 |
| Nitrogen, N ... ... | 3·6 | 0·9 | 1·6 | 2·1 | 1·1 | 1·4 | 3·4 | 1·7 | 2·0 | 2·5 | 1·9 | 2·4 | 1·4 | 1·9 | 2·9 | 2·0 | 2·6 | 2·3 | 2·3 | 1·6 | 2·7 |

For comparative purposes, the compositions of the Malta manures have also been calculated to a moisture-free basis, the results being shown in the second table above, where the composition of the average Rothamsted farmyard manure, calculated on the same basis, is also included.

It will be seen that the composition of the samples as received is extremely variable, particularly in regard to moisture content, which ranges from 7.1 to 68.2 per cent; the amounts of the manurial constituents also vary widely.

The composition of farmyard manure, with which the present samples are comparable, is always liable to wide fluctuations. Collins ("Plant Products and Chemical Fertilizers", London, 1918) states that the average composition of farmyard manure, kept under reasonable, but not ideal conditions, may be considered to fall within the following limits :—

| | Per cent |
|---|---|
| Moisture ... ... ... ... ... ... | 75.3 to 80.9 |
| Phosphoric Acid $P_2O_5$ ... ... ... ... | 0.26 to 0.34 |
| Potash $K_2O$ ... ... ... ... | 0.52 to 0.68 |
| Nitrogen N ... ... ... ... | 0.54 to 0.72 |

Hall ("Fertilizers and Manure", 3rd edition, London, 1929) states that the average composition of Rothamsted farmyard manure is as follows :—

| | Per cent |
|---|---|
| Moisture ... ... ... ... ... ... | 76.0 |
| Phosphoric acid $P_2O_5$ ... ... ... ... | 0.23 |
| Potash $K_2O$ ... ... ... ... | 0.32 |
| Nitrogen N ... ... ... ... | 0.64 |

It is therefore evident that farmyard manure is not a material expected to be rich in inorganic fertilising constituents.

The chemical compositions of the present samples from Malta expressed on the dry basis, may be considered on the whole as satisfactory. It will be noted that sample No. 2 is distinctly the poorest in composition, while Nos. 3, 5, 6 and 13 also cannot be considered good.

It must be remembered, however, that the chief action of farmyard manure is not usually considered to be due to its content of inorganic manurial constituents, but to its favourable effect on the physical and microbiological condition of the soil. The results of chemical analysis, moreover, do not indicate the relative availability of the various fertilising constituents in the manures, and this would probably vary considerably according to the character of the material. For instance, samples Nos. 2 and 3, which appear to consist largely of household refuse, would not be expected to contain their manurial constituents in as readily available a form as those samples which consist mainly of well-rotted vegetable matter, nor would they be likely to have so beneficial an effect on the micro-organisms of the soil.

In conclusion, it may be said that all the present samples contain fertilising elements in amounts comparable with those found in farmyard manure. They would all be likely to have some beneficial effect on the soil, especially on rather light soils deficient in humus, and this effect would probably vary more according to the physical character of the manure than according to its chemical composition.

8th March, 1935.

# APPENDIX II.

## Report on Viticulture and Oenology for the year 1934-1935.

### VITICULTURE.

*General Survey of the year.* The agricultural year 1934-35 may be considered as having closed very favourably as regards Viticulture. The winter rains caused sufficient moisture to be stored in the ground for the needs of the plant during its vegetative cycle, while perfectly dry weather marked the ensuing stages of development and maturing of the grape, there being no summer cloud-burst and no incidence of disease to disturb the successive phases of growth and ripening. I am pleased to record that the year was characterised by practical immunity from disease, the only occurrences being slight cases of Peronospora and Oidium which were noted in very limited areas which happened to be badly aired and drained.

The persistent rains which precluded all field-work also prevented the permanent planting out of American rootlings in the new vineyards before February and March had set in; no prejudicial after-effects were, however, noted in this connexion, as the young plants throve very satisfactorily as I had occasion to note during my visits for propaganda purposes.

The vintage was extraordinarily abundant. This abnormally heavy crop, however, was the cause of preventing the berries from attaining perfect maturity, this particular being specially noted in the variety called "giannoru" which I regret is so widely diffused in Gozo (where over-productivity is always its fault); but, on the whole, even this variety gave no cause for complaint. The quality of the produce, considered in relation to the varieties of vines cultivated, was also satisfactory.

The crop, after an initial period of uncertainty due to the heavy quantities on hand and to the unsettled state of the wine-making industry, found a ready market and the monetary returns were considered as sufficiently remunerative by the viticulturist. Practically all the crop may be regarded as going to the wine-press, only small quantities being disposed of as table-grapes in the more populous and thriving centres.

*Reconstitution of Phylloxerated Vineyards.* Attracted by the fact that the vine gives a return much superior to any other crop plant, viticulturists are continuing and intensifying their work of reconstitution of Phylloxerated vineyards. In Gozo, not only is this an accomplished fact, but the number of new plantations is always on the increase.

In Malta and Comino — where faith in the efficacy of Phylloxera-resisting stock was, till about a year a go, very limited — only about one third of Phylloxerated vineyards has been reconstituted with American stock. Even here, however, owing to the persistent propaganda work and the technical help offered free by this Department, combined with the re-organized productivity of the nurseries, reconstitution has reached fairly large proportions and shows a tendency to increase.

During the last twelve months great improvements have taken place in plantations also in Malta — which justify hopes that a profitable reconstitution on a sound basis will shortly be an accomplished fact.

*Technical assistance, propaganda and experiments with vines.* Being convinced of the fact that the Maltese countryman will not "take a telling" but he will "take a showing", and having at heart the advancement of instruction in the rural areas, we have concentrated our efforts during the year under review towards completing the reorganization of the American Vines Nurseries and the laying out of experimental vineyards as object-lessons, in the more important viticultural districts. At the same time numerous visits were made with the object of giving the requisite instruction on plantation work, on the choice of viticultural stock, on details of rearing, on production, on combating fungoid diseases, and so on and so forth.

As a general rule the bulk of the growers, whilst maintaining an attitude of reserve, justified by their innate diffidence towards anything new, have followed with curiosity and intent the demonstrations given and were quick to adopt any method or measure that promised to give practical results.

## American Vine Nurseries.

*Nursery produce in 1934.* The nursery produce in 1934, after benig culled and sorted as indicated in my last report, is as follows :—

| Nurseries | American Rootlings | Graftlings | Adult Trees. |
|---|---|---|---|
| Malta ... ... | 73,940 | 763 | — |
| Gozo ... ... | 121,060 | 152 | 62 |
| Totals ... | 195,000 | 915 | 62 |

*Distribution of Nursery Stock 1934.* This was distributed thus :—

| Destination | American Rootlings | Graftlings | Fruit Trees * |
|---|---|---|---|
| Sold in Malta ... ... ... | 59,016 | 535 | — |
| Sold in Gozo ... ... ... | 120,491 | 352 | 62 |
| For constituting experimental vineyards ... ... ... | 9,500 | — | — |
| For new nursery plantations ... | 3,089 | — | — |
| Replaced in nurseries ... ... | 1,500 | — | — |
| Destroyed as weak plants ... | 1,404 | 28 | — |
| Totals ... ... | 195,000 | 915 | 62 |

*Receipts.* The following table shows the receipts from sales at nurseries :—

| Stock sold | Receipts in Malta | Receipts in Gozo | Total |
|---|---|---|---|
| American Rootlings ... ... ... | £73 15 5 | £150 12 3 | £224 7 8 |
| American Graftlings ... ... ... | 3 6 10½ | 2 4 0 | 5 10 10½ |
| Fruit trees * ... ... ... ... | — — — | 5 18 8 | 5 18 8 |
| Fruit (peaches, oranges, lemons, bananas, grapes *) ... ... | — — — | 15 3 3 | 15 3 3 |
| Totals ... ... | £77 2 3½ | £173 18 2 | £251 0 5½ |

*American Mother-Plants.* The culling and sorting of American mother-plants, which was commenced in 1934, was practically brought to a finish in 1935. The following list shows the number of plants actually in hand, all being in perfect vigour and, as far as I can state, free from all disease :—

No. 4287, Rupestris du Lot
No. 3596, Berl. × Rip. 420A
No. 208, Berl. × Rip. 34 E.M.
No. 583, Berl. × Rip. 157 — 11
No. 100, Berl. × Rip. Teleki 5 bb Kober
No. 100, Berl. × Rip. Teleki Tipo 8B
No. 1677, Chass. × Berl. 41B

Total No. 10551 American mother-plants in full growth.

At the beginning of 1935 the following rootlings were planted to become mother-plants for the production of American vine cuttings, a part being imported from abroad :—

No. 486, Berl. × Rip. Teleki 5 bb Kober
No. 196, Berl. × Rip. Teleki 8 M
No. 334, Berl. × Rip. Teleki Sel. Ferrari 8 B.
No. 660, Berl. × Rip. 34 E.M.

1676 — these being planted in the "Ta Sammat" Nursery at C. Pawla.

* Fruit trees cultivated on two small plots in two of the nurseries.

No. 1676 — these being planted in the "Ta Sammat" Nursery at C. Pawla.

No. 282, Berl. × Rip. Teleki M.
No. 66, Berl. × Rip. Teleki 8 M.
No. 663, Berl. × Rip. Teleki Sel. Ferrari 8 B.
No. 351, Berl. × Rup. 1103 I.P.
No. 51, Rip. × Solonis 16-16.

1413 — these being planted in the Victoria Nursery at Gozo.

No. 1413

No. 3089 — Total of newly planted mother-plants.

*New varieties of American Vines.* In order to complete the assortment necessary for the special requirements of these Islands, the following varieties were imported from abroad :—

1. Berl. × Rup. 1013 I.P. — for deep, moist, retentive and calcareous soils.
2. Rip. Solonis 16-16 — for moist, deep and brackish soils.

The foregoing, together with the recently imported Teleki hybrids, which have not been properly tested, appear to agree with our soil and climate. If my conjectures are correct, the present assortment of American vines in our nurseries should fully meet all the wants of local viticulture.

*Planting of Nursery Material in 1935.* The repeated cloud-bursts which hindered all field-work during the winter months compelled us to start the planting of nursery stock rather late in the season, the following being carried out in February and March :—

| Nursery Stock | Nurseries in Malta | Nurseries in Gozo | Total |
|---|---|---|---|
| American cuttings ... ... ... ... | 167,000 | 190,000 | 357,000 |
| Grafted cuttings ... ... ... ... | 12,000 | — | 12,000 |
| American rootlings (new mother-plants) ... | 1,676 | 1,413 | 3,089 |
| Re-planted American rootlings ... ... ... | 500 | 1,500 | 2,000 |
| Wilding fruit-bearers ... ... ... ... | — | 119 | 119 |
| Young fruit-bearers (mother-plants) ... ... | — | 90 | 90 |

*Progress in Nursery Culture.* Notwithstanding all precautions taken when planting, the excessive humidity of the soil and the want of rotation on the plots reserved for rootlings, the number of cuttings that sprouted fell below our hopes. The growth of the rootlings, however, exceeded all expectations and the cuttings next December will be superior in quality to those of any previous year. The Teleki hybrid rootlings are very prominent for their luxurious vegetation.

The American mother-plants, in general, show that they have been affected by the drought. The care which has been lavished on them, by means of fertilizers and deep tillage (surface work was also carried out during the summer in the palisaded sections) will enable us to harvest a sufficient amount of cuttings for future plantations.

The arrangement and organization of the American Vine Nurseries may now be regarded as fully carried out, and entirely in consonance with the exigencies of modern viticulture.

### The Ampelographic collection at Victoria, Gozo.

Having noted the deficient production of certain foreign vines, of rather doubtful worth, I thought it proper to over-graft them with varieties lately imported. About 400 plants were thus over-grafted, and the results — after duly considering the age of the plants and the unfavourable behaviour of the weather — were fairly satisfactory. I am keeping them under observation, and the pick of the selection will eventually be utilized for the production of scions to be distributed to the public.

*The Vintage in 1935.* Those varieties which were not over-grafted, enjoyed a sequence of favourable meteorological conditions, and were subjected to preventive measures regarding fungoid diseases and insect pests. In this connexion particular attention was given to the scale- insects, the bark being scraped with wire-gauge gloves and then sprayed with "VOLCK" — this during the dormant season. The vines responded to this treatment with heavy and healthy crops.

The amount of grapes harvested in 1935 totalled Ka. 17.77 (£9. 6. 7) as against Ka. 15.25 (£8. 12. 10) in the preceding year; but in this regard it must be noted that in 1935 there were 400 vines less than in 1934.

After the grapes had been gathered, 315 vines which had been originally grafted on hybrid direct bearers, and which now showed signs of exhaustion, were accordingly pulled out as unprofitable.

### Experimental Vineyards.

Of the nine experimental vineyards laid out in Malta, one had to be given up on account of the incompetence of the farmer.

The principal reasons which led to the creation of experimental vineyards are the following:

a) The necessity of initiating a series of studies on the adaptability of the different varieties of American stock — both recently imported and those which have been here for many years — with regard to our soil and our climate.

b) The necessity of ascertaining the different degrees of grafting affinity between the American stock now in use in the local vinifera as well as those recently introduced into those Islands.

c) The necessity of introducing new varieties of vines of wine-grapes, and their adaptability to local soils and climate, their productivity and their disease-resisting qualities.

d) The necessity of having, in the principal viticultural centres, demonstration vineyards to serve for the diffusion of sound principles of viticulture.

Lands of different soils and of different exposure situated in the more important viticultural centres, were offered by private owners to the Department of Agriculture, and agreements were entered upon whereby the parties — owners and Government — bound themselves for a period of 15 years, i.e. the minimum period required to bring to a conclusion the work and studies commenced.

On the basis of these agreements, private owners contribute the land, the necessary manual labour and organic manure, while the Department of Agriculture provides the plants, chemical fertilizers, and materials for combating fungoid diseases and insect pests. The Department of Agriculture also assumes technical control of the works to be performed. A premium of £1 for every tumolo of vineyards was offered every (agricultural) year to the private owner, subject, however, to the results being admitted as satisfactory by the Department of Agriculture. The entire produce goes to the private owner, excepting such small quantities as might be required by the Department for eno-chemical purposes.

The following are details of the eight experimental vineyards planted out in the first quarter of 1935:—

| District | | Locality | Area m. s. | Number of Rootlings |
|---|---|---|---|---|
| Victoria | Gozo | "Ta' Metalla" | 2,000 | 1,152 |
| do. | do. | "Ta' Hamet" | 2,092 | 1,287 |
| Xewchija | do. | "Ġnien is-Sultan" | 1,800 | 1,200 |
| Għasri | do. | "Għammar" | 1,438 | 840 |
| S. Lawrenz | do. | "Tal-Gidi" | 1,792 | 1,000 |
| Rabat | Malta | "Tal-Qasba" | 1,245 | 756 |
| St. Paul's Bay | do. | "Tal-Reuplu" | 2,245 | 1,200 |
| Siġġiewi | do. | "Tal-Għirbeġ | 2,120 | 1,152 |
| | | Totals | 14,732 | 8,587 |

From the very first year, these experimental vineyards demonstrated their utility, and markedly in the viticultural districts of Malta where the reconstitution of vineyards on American stock was regarded with jaundiced eyes. The successful results attending the planting showed the agriculturist that American vines can grow luxuriantly in these Islands and give promise of being heavy croppers.

The number of rootlings successfully planted in the Experimental Vineyards was 90.50% of the gross total (the heavy casualities caused by "Pentodon punctatus" being here included).

The vigorous growth of these rootlings was on the whole satisfactory, while in the varieties Berl. × Rup. 1103 I.P. and in the Teleki hybrids it surpassed expectation.

In all places viticulturists followed with marked attention the details of work as carried out in the vineyards.

In 1937 the American vines will be grafted with varieties of wine-grapes.

### New varieties of wine-grapes.

With the object of improving as speedily as possible our viticultural produce, scions were imported from abroad last February, and distributed among viticulturists. These scions are of varieties which, as we are aware can be grafted easily on the American vines found locally, and include, among others: Catarratto bianco comune, Trebbiano, Malvasia, Verdiso, Barbera, Merlot, Malbeck, Cabernet Franc, Frappato nero di Vittoria, Calabrese nero di Vittoria, San Giovese.

Specimens of these varieties have been grown in our nurseries both as rootlings and as graftlings, as a result of which we will have two collections next season (one in Malta and the other in Gozo).

In view of the rapid spread of viticulture in these Islands, the earnestness of vine-growers, and the improvement that may be shortly attained through technico-scientific organization in nursery stock, through the Experimental Vineyards, and by means of efficacious propaganda work combined with technical assistance wherever it is needed, it is with regret that I note the uncertain wine-market, — a state of affairs which is due solely to the want of protection against foreign rivals and to the want of a competent branch to deal with fraudulent and adulterated produce.

### Viticultural Statistics.

With the object of realizing the extent and importance of our local wine-industry, I nave made a point of gathering the following statistical data which, although not absolutely accurate, should be reliably so, inasmuch as they are very approximate.

1. *Area of Phylloxera-affected vineyards*: As a matter of fact, every place where the vine grows may be considered as infected with Phylloxera.

2. *Area under vines*: In round numbers, the area under vines throughout 1935 in these Islands amounted to 6,000 tummoli.

The major extent is in Gozo, where vines occupy from 11 to 12 per cent of the whole arable surface, the total amounting to 4,000 tummoli.

3. *Reconstitution of Phylloxerated vineyards*: In Gozo, the reconstitution of Phylloxerated vines on American stock, is practically an accomplished fact.

In Malta and Comino only one-third of the Phylloxerated vineyards have been reconstituted on American stock, the remaining two-thirds having been partly replanted with vinifera stock and partly awaits reconstitution. Summing up we have:—

| | |
|---|---|
| Reconstituted on American stock ... ... ... | 4,500 tummoli |
| Reconstituted on Vinifera or left over ... ... | 1,500 tummoli |
| Total ... ... | 6,000 tummoli. |

With the scope of reconstituting our vineyards with American stock, the Department of Agriculture has disposed of the following nursery material from 1919 to the end of 1935 :—

| | |
|---|---|
| American cuttings ... ... ... ... ... ... | 44,000 |
| American rootlings, grafted ... ... ... ... ... | 26,000 |
| American rootlings ... ... ... ... ... ... | 1,800,000 |

I am of opinion that the foregoing has served to replace two-thirds of the vineyards, the remaining third being reconstituted with stock procured from private growers but originally coming from the Government nurseries of American vines.

Striking an average, during the last six years, the annual area reconstituted with American vines may be taken at 400 (four hundred) tummoli.

4. *Viticultural Capital* :

| | |
|---|---|
| a) Value of land considered as bare, at an average of £45 per tumolo (6,000 tummoli) ... ... ... | £270,000 |
| b) Cost of planting vineyards, at an average of £24 per tummolo (6,000 tummoli) ... ... ... ... ... | 144,000 |
| Total Capital ... ... | £414,000 |

5. *Maintenance expenses, annually recurrent* :

| | |
|---|---|
| a) Labour in the vineyards, — periodical manures, fertilizers, insecticides, fungicides etc., at an average of £2. 5. 0 per tummolo (6,000 tummoli) ... ... ... | £ 13,500 |
| b) Sinking fund for the amortization of the capital of £144,000 in 17 years at 2½%, rate of interest being scaled every year ... ... ... ... ... ... | 9,670 |
| c) Interest of 2½% p.a. on the value of the bare land ... ... | 6,750 |
| Total ... ... | £ 29,920 |

6. *Value of annual produce* : On the supposition that all the vineyards be in full bearing (which will materialise in 1938 as regards the 6,000 tummoli planted during 1935) we have :—

| | |
|---|---|
| a) Grapes — average of 12 Qantars per tummolo, i.e. 72,000 qantars at the average price of 11s/- ... ... | £ 39,600 |
| b) Prunings — approximate value ... ... ... ... | 750 |
| Total ... ... | £ 40,350 |

7. *Wine-Capital* : At present, the actual output of local wines (natural wines and "second wines") is considered to be 50,000 hectolitres. To this must be added the amount of foreign wines imported quarterly, which on an average is 20,000 hectolitres. The total at the time of the vintage therefore amounts to 70,000 hectolitres. Estimating the value of cellars, casks, implements, and machinery, etc., at 15s/- per hectolitre the aggregate total amounts to ... ... ... ... ... ... ... £52,500

8. *Annual wine-output* : The actual difficulties, with which the wine-business bristles, were an insurmountable obstacle to determining precisely the average price for Maltese wine ; however it is about 8s/- per barile, and consequently 18s/6d. per hectolitre, which gives :—

| | |
|---|---|
| a) 50,000 hectolitres of wine at 18s/6d ... ... ... ... | £ 46,250 |
| b) By-products of the wine-industry ... ... ... ... | 300 |
| Total ... ... | £ 46,550 |

9. *Oenology — expense annually recurrent* : This depends to a great extent on the amount of illicit wine produced and the methods therein adopted. The annual expenses may be reckoned at ... ... ... ... ... ... ... £ 20,000

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## OENOLOGY.

**(Report to be published later).**

# APPENDIX III.

## Report of the Superintendent of Public Gardens for the year 1934-35.

OFFICE OF PUBLIC GARDENS,

San Antonio, 27th May, 1935.

Sir,

I have the honour to submit the Annual Report on the Public Gardens, Plantations and Nurseries for the year 1934-35.

### SAN ANTONIO PUBLIC GARDENS

#### Weather.

2. The weather was mild up to a few weeks before Christmas, but during the following months it was remarkably cold and wet. Chilly weather continued throughout March, consequently the growth of plant life was later than usual. The total rainfall for the year, has been above the average, but badly distributed. The total rainfall for the period from the 1/4/34 to the 31/3/35, was 31.90 inches. Rain fell on 86 days, distributed as follows :

| 1934 | | 1935 | |
|---|---|---|---|
| April ... ... ... ... | 3 days | January ... ... ... | 27 days |
| May ... ... ... ... | 3 days | February ... ... ... | 7 days |
| September ... ... ... | 1 day | March ... ... ... | 9 days |
| October ... ... ... | 8 days | | |
| November ... ... ... | 12 days | | |
| December ... ... ... | 16 days | | |

The wettest month has been December with 6. 61 inches. The greatest fall during any 24 hours was 3. 54 inches registered at 8 a.m. on the 26th November. A violent storm accompanied by heavy rain was experienced on the 25th and 26th November, and on the 6th January there occurred another sudden storm, the wind attaining a high velocity, which caused much extra work and harm to plants, trees and shrubs.

#### Floral Displays.

3. Notwithstanding the adverse weather conditions, good displays of flowers were maintained during the various seasons. The flowering and foliage plants in glass houses and under glazeroofed sheds can be controlled against the vagaries of the weather, and as usual, the many fine subjects in view were a source of pleasure to visitors. Novelties of merit were numerous. The following new plants have flowered during the year: Rhododendron Everiatianum, Rh. Homer Waterer, Rh. John Waterer, Rh. Kate Waterer, Rh. Mad. Mason, Rh. Pink Pearl, Rh. Princess May of Cambridge, Rh. William Austin, Iris barbata (Tall Bearded Iris) :—Ambassador, Amber, Flaming Sword, Fro, Gold Crest, Imperator, Mrs. Alan Gray, Parc. de Neuilly, Prosper Laugier, Salonique, Wedgewood, White Knight, Viburnum opulus sterilis,Spirea Anthony Waterer, Genista Daisy Hill, G. Dellimorey. G. Andreana, Philadelphus Virginal, Bouvardia: Alfred Neuner, Brilliant, President Garfield, The Bride, Hogarthi, Clivia (Imanthophyllum) new Hybrid, Forsythia viridissima, Lagerstroemia indica and Kalanchoe Blossfieldiana (Globulifera var. coccinea), a recent introduction of outstanding merit which made a big stir in the horticultural world, the 6 plants grown from seed remained in flower for two months—February and March.

#### Trees and Shrubs added.

4. 12 ornamental trees and 140 new Roses have been added to the gardens during the year, and the following have been replaced : 12 orange trees, 6 grape fruit, 6 Bergamot, 6 ornamental trees, 50 shrubs and 30 creepers.

The Director of Agriculture.

### Proceeds.

5. The number of oranges, lemons etc. obtained was about 7,400 dozens which were sold by contract for £187. 6. 0. Other proceeds from the sale of fruits, plants, flowers and firewood amounted to £55. 4. 3 making a total of £242. 10. 3 The total proceeds last year amounted to £217. 12. 5.

### Lectures.

6. The Superintendent delivered twenty six lectures on floriculture and arboriculture to apprentice gardeners, employed in the Public Gardens, and on a number of occasions conducted parties round the gardens, and explained the many interesting features concerning the plants grown in the area. The Superintendent also furnished information personally or by correspondence, to persons seeking advice in horticulture and arboriculture.

### Labelling.

7. Part only of one man's time is available for the important work of labelling. Plants lose their educational value to most people by the absence of labels, and I can say that labelling is being pushed on as fast as circumstances permit.

### Visitors.

8. The attendance of the Public was very satisfactory, especially on Saturday afternoons, Sundays and holidays. The number of tourists who visited the gardens during the period from the 1. 4. 34 to the 31. 3. 35, was about 81752.

## BUSKETT PUBLIC GARDENS.

### Planting.

9. During the year under review the following fruit trees have been planted:

81 Egg Blood orange trees.
41 Valencia orange trees
17 Bahia orange trees
21 Ordinary Blood orange trees
28 Apple trees
24 Pear trees
10 Olive trees
4 Pecan nut trees

3,440 cuttings and rootling of wild plum, wild cherry, wild apple and quince, to be used stocks, and 731 grafted American vines were also planted.

### Proceeds.

10. The number of oranges, lemons etc. obtained from the gardens was about 9,100 dozen which were sold by contract for £92. 12. 0 The crop of figs and grapes was also sold by contract for £55. 13. 4 and that of Loquats for £15. 16. 9. Other proceeds from the sale of fruits, firewood etc. amounted to £88. 7.0, making a total of £252. 9. 1. The total sum collected last year was £285. 17. 4.

### Rainfall.

11. The raifall recorded in these gardens, during the period from the 1/4/34 to the 31/3/35, was 30,66 inches, falling on 71 days, compared to 15.16 inches on 31 days during the same period last year. The wettest months were November and December with a rainfall of 6.08 inches and 5.39 inches respectively. The greatest fall during any 24 hours was 3.15 inches registered at 8 a.m. on the 26th November.

### Visitors.

12. These gardens continue to be freely patronized all the year round for picnicing, and on Sunday and holidays are the rendezvous of organized parties in motor-buses, the number of which often run up to 100.

## SAN ANTONIO AND VERDALA PRIVATE GARDENS.

### Maintenance.

13. The San Antonio and Verdala Private Gardens have been maintained in their usual attractive condition. 4 shrubs have been added, and 8 orange trees, 6 pine trees and 8 shrubs have been replaced.

## OTHER PUBLIC, GARDENS, MALTA.

### Maintenance.

14. In the Valletta, Floriana, and other Public Gardens, the beds and borders of annuals and perennials received constant attention, and a continual display of flowers was maintained throughout the year. 72 trees, and 370 shrubs have been added.

## PUBLIC PLANTATIONS, MALTA.

### Trees Planted and Replaced.

15. The total number of trees planted along roads and open spaces during the year is 1,373 of this number 586 represent replacement of trees badly damaged or destroyed by men, goats, motor cars or other vehicles.

### New Plantations.

16. The following is a detailed list of the new plantations :—

| | | |
|---|---|---|
| Ta' Braxia Glacis ... ... ... | 421 | Pine trees |
| Ta' Braxia Glacis ... ... ... | 93 | Cypress trees |
| Valletta Main Ditch ... ... ... | 5 | Oleander trees |
| Valletta Main Ditch ... ... ... | 5 | Acacia trees |
| St. Paul's Bay (near the Cemetery) ... | 20 | Cypress trees |
| St. Paul's Bay (near the Cemetery) ... | 2 | Bougainvillea |
| Via Notabile — Valletta ... ... ... | 10 | Pine trees |
| Via Notabile — Valletta ... ... ... | 9 | Oleander trees |
| Marsamxett Bastion, Valletta ... ... | 23 | Cercis trees |
| Marsamxett Bastion, Valletta ... ... | 17 | Celtis trees |
| Piazza Casal Pawla ... ... . | 5 | Oleander trees |
| Via VIII Settembre ... ... ... | 170 | Pine trees |
| Imriehel Road ... ... ... ... | 18 | Oleander trees |
| Outside St. Anna's Curtain ... ... | 2 | Bougainvillea |

## PUBLIC NURSERIES, MALTA.

17. The following is a detailed list of trees, shrubs etc. propagated by means of seeds cuttings, layers and grafting, available in the Public Nurseries on the 31st March, 1935 :—

"Tal-Kmand" Nursery — Lija.

| Qty. | Kind | | Where planted | Height |
|---|---|---|---|---|
| 50 | Acacia cyanophylla, Blue-leaved Acacia ... ... | 7 | inch pots | 3-5 ft. |
| 33 | Acacia cyanophylla, Blue-leaved Acacia ... ... | 11 | ,, ,, | 6-7 ft |
| 28 | Acacia saligna, Acacia tree ... ... ... ... | 7 | ,, ,, | 3-5 ft. |
| 8 | Acacia saligna, Acacia tree ... ... ... ... | 11 | ,, ,, | trained as bushes |
| 1 | Acacia longifolia, Acacia tree ... ... ... ... | 9 | ,, ,, | 3-4 ft. |
| 20 | Acacia Farnesiana, Fernasian Acacia (Sponge tree) ... | 11 | ,, ,, | 6-7 ft |
| 6 | Acacia eburnea, Ivory-thorned Acacia ... ... ... | 11 | ,, ,, | 6-7 ft |
| 63 | Acacia retinoides, Acacia tree ... ... ... ... | 8 | ,, ,, | 3-5 ft. |
| 8 | Acacia cyanophylla, Acacia tree ... ... ... ... | 11 | ,, ,, | trained as bushes |
| 40 | Ficus nitida (lucida) Java fig trees ... ... ... ... | 12 | ,, ,, | ,, ,, |
| 18 | Ficus nitida (lucida) Java fig-tree ... ... ... | 11 | ,, ,, | 5-6 ft. |
| 2 | Ficus rubiginosa, Rusty Fig-tree ... ... ... | 7 | ,, ,, | 3-4 ft. |
| 90 | Ficus citrifolia, Lemon-leaved Fig tree ... ... ... | 7 | ,, ,, | 3-4 ft. |
| 64 | Quercus Ilex, Holm or Holly Oak—*Ballut* ... ... ... | 9 | ,, ,, | 5-6 ft. |

| Qty. | Kind | Where planted | Height |
|---|---|---|---|
| 102 | Quercus pyramidalis, Pyramidal Oak-*Ballut* | 8 inch pots | 3-4 ft. |
| 46 | Quercus Robur, Common Oak—*Gandar* | 8 ,, ,, | 3-4 ft. |
| 100 | Pinus pinea, Stone pine—*Prinjola* | 11 ,, ,, | 5-6 ft. |
| 19 | Casuarina tenuissima, Slender Casuarina | 10 ,, ,, | 5-6 ft. |
| 50 | Casuarina Cuninghamiana, Cuningham Casuarina | 6 ,, ,, | 1-2 ft. |
| 12 | Casuarina equisitifolia, South Sea Island Casuarina | 8 ,, ,, | 3 ft. |
| 21 | Casuarina stricta, Upright Casuarina | 8 ,, ,, | 3 ft. |
| 30 | Phoenix dactylifera, Date Palm—*Palma tat-Tamar* | 11 ,, ,, | 3 ft. |
| 21 | Cupressus sempervirens pyramidalis, Pyramidal Cypress, *Cipress* | 11 ,, ,, | 3 ft. |
| 3 | Cupressus lusitanica, Goa Cypress—*Cipress* | 11 ,, ,, | 3-4 ft. |
| 1 | Cistus laburnum, Laburnum | 7 ,, ,, | 3 ft. |
| 6 | Tecoma Brycei, Bryce's Tecoma | 8 ,, ,, | 1-2 ft. |
| 5 | Lantana hybrida, Hybrid Lantana | 8 ,, ,, | 1-2 ft. |
| 10 | Philadelphus coronarius, Garland Mock Orange | 10 ,, ,, | 1-2 ft. |
| 6 | Cassia floribunda gdfl., Bundle-flowered Cassia | 8 ,, ,, | 1-2 ft. |
| 50 | Schinus dependens, Handing sown Schinus | 7-9 ,, ,, | 1-2 ft. |
| 12 | Poinciana Gillesi, Gillie's Poinciana | 8 ,, ,, | 1-2 ft. |
| 1 | Duranta inermis, Unarmed Durânta | 8 ,, ,, | 2-3 ft. |
| 2 | Taxus baccata, Common Yew | 11 ,, ,, | 2-3 ft. |
| 3 | Corynocarpus laevigata, Smooth-leaved Corynocarpus | 8 ,, ,, | 2-3 ft. |
| 65 | Tecoma Stans var. angustata, Yellow trumpet Flower | 6-7 ,, ,, | 2-3 ft. |
| 4 | Nerium Oleander, Rose Bay or Ooleander, *Oljandru* | 7 ,, ,, | 5 ft. |
| 31 | Caesalpinia pulcherrima, Red and Yellow Poinciana | 6 ,, ,, | 2 ft. |
| 24 | Caesalpinia pulcherrima, Red and Yellow Poinciana | 7 ,, ,, | 2-3 ft. |
| 20 | Solanum nuticum, Snipped Solanum | 6 ,, ,, | 1-2 ft. |
| 10 | Poinciana Regia, Gold Mohur | 9-11 ,, ,, | 1-2 ft. |
| 33 | Passiflora coerulea, Passion-flower,—Ward tal-Passjoni | 9 ,, ,, | 1-2 ft. |
| 3 | Tamarindus indica, Tamarind tree | 9 ,, ,, | 2-3 ft. |
| 2 | Cistus sessiliflorus, Rock Rose | 8 ,, ,, | 1 ft. |
| 1 | Cassia fistula, Indian Laburnum | 8 ,, ,, | 2 ft. |
| 1 | Terminalia belerica, Myrabalan | 7 ,, ,, | 2 ft. |
| 1 | Aesculus rubicunda, Red-flowered Horse Chestnut | 12 ,, ,, | 3 ft. |
| 1 | Gymnocladus canadensis. Canadian Coffee-tree | 12 ,, ,, | 3 ft. |
| 8 | Cotoneaster pannosa, Woolly Cotoneaster | 8 ,, ,, | 7 ft. |
| 1 | Bauhinia purpurea, Camel's foot-tree | 9 ,, ,, | 1-2 ft. |
| 1 | Albizzia lebbek, Lebbek-tree | 9 ,, ,, | 1-2 ft. |
| 1 | Cotoneaster Salicifolia, Willow-leaved Cotoneaster | 1 ,, ,, | 7 ft. |
| 10 | Solanum Wendlandii, Wendland's Solanum | 8 ,, ,, | 1-2 ft. |
| 85 | Eriobotrya japonica, Loquat-tree—*Naspla* | 8 ,, ,, | 6-8 ft. |
| 137 | Olea europea (seedlings) Olive tree—*Zebbuġ* | 6-7 ,, ,, | 2-4 ft. |
| 15 | Persea gratissima, Avocado Pear | 8-11 ,, ,, | 3-5 ft. |
| 44 | Acer negundo, United States Maple tree | 9-11 ,, ,, | 6-7 ft. |
| 225 | Buxus sempervirens, Box tree—*Bux* | 5 ,, ,, | ½ ft. |
| 6 | Ficus carica, Fig tree—*Tina* | 9-11 ,, ,, | 3 ft. |
| 9 | Cerotonia Siliqua, Carrob tree—*Harruba* | 8-11 ,, ,, | 6-7 ft. |
| 13 | Ligustrum nepalense, Nepaul Privet | 8-11 ,, ,, | 6-7 ft. |
| 2 | Ligustrum japonica, Japanese Privet | 12 ,, ,, | 4-5 ft. |
| 30 | Jacaranda mimosaefolia, Mimosa-leaved Jacaranda | 7-9 ,, ,, | 4-5 ft. |
| 7 | Melia sempervirens, Evergreen Persian lilac | 11 ,, ,, | 4-5 ft. |
| 9 | Ribes nigrum, Black currant | 7 ,, ,, | ½ ft. |
| 14 | Washingtonia filifera, Thread-bearing Palm tree | 7 ,, ,, | seedlings |
| 22 | Plumbago zeilanica, Cingalese headwort | 7 ,, ,, | 2-3 ft. |
| 6 | Cercis Siliquastrum, Judas tree *Harruba ta' Guda* | 8-11 ,, ,, | 6-7 ft. |
| 37 | Pistacia Terebinthus, Turpentine tree *Skarnabek* | 7-11 ,, ,, | 5-6 ft. |
| 36 | Hibiscus syriacus, Syrian Hibiscus—*Ibiskus* | 8 ,, ,, | 3 ft. |
| 70 | Tamarix hispida, Tamarisk tree—*Bruka* | 9-11 ,, ,, | 3 ft. |
| 30 | Carya olivaeformis, Pecan-nut—*Ġewż Amerikan* | 8 ,, ,, | 3 ft. |
| 10 | Gleditschia Triancanthos var, inermis, Honey Locust | 9 ,, ,, | 3 ft. |
| 60 | Hippophae rhammoides, Rhamnus—like Saltow-thorn | 8 ,, ,, | 1-2 ft. |
| 16 | Punica Granatum, Pomegranate tree,—*Rummien* | 11 ,, ,, | 1-2 ft. |
| 17 | Morus nigra, Black Bulberry—*Tuta* | 11 ,, ,, | 2-3 ft. |
| 87 | Eucalyptus gomphocephala, Gum tree | 10 ,, ,, | 2-3 ft. |
| 10 | Eucalyptus macranda, Gum-tree | 10 ,, ,, | 2-3 ft. |
| 9 | Psidium guava, Guava-tree | 9 ,, ,, | 1-2 ft. |
| 1 | Termialia Arjuna, the Arium | 7 ,, ,, | 1-2 ft. |
| 1 | Verbesina virginica, Virgunian Crown Beard | 7 ,, ,, | 1-2 ft. |
| 21 | Acacia cyanophylla, Blue-leaved, Acacia tree | in casks | trained as bushes |
| 56 | Acacia saligna, Acacia tree | ,, | trained as bushes |
| 21 | Ficus nitida (lucida) Java Fig tree | ,, | trained as bushes |

| Qty. | Kind | Where planted | Height |
|---|---|---|---|
| 12 | Ficus citrifolia, Lemon-leaved Big tree ... ... ... | in casks | trained as bushes |
| 140 | Quercus Ilex, Holm or Holly Oak—*Ballut* ... ... | ,, | 7-9 ft. |
| 15 | Morus alba pendula, Weeping Mulberry—*Cawsla* ... ... | ,, | 7-9 ft. |
| 1 | Pinus halepensis, Aleppo Pine—*Znuber* ... ... | ,, | 7-9 ft. |
| 41 | Phoenix canariensis, Canary Date Palm ... ... | ,, | 3-4 ft. |
| 21 | Cupressus sempervirens pyramidalis, Pyramidal Cypres —*Cipress* ... ... ... ... ... ... | ,, | 3-4 ft. |
| 2 | Corynocarpus laevigata, Smooth-leaved Corynocarpus ... | ,, | 3-6 ft. |
| 1 | Aberia caffra, Kai-Apple tree ... ... ... ... | ,, | 3-4 ft. |
| 2 | Populus italica pyramidalis, Pyramidal Poplar-*Luq* ... | ,, | 7-9 ft. |
| 9 | Eriobotrya japonica, Loquat tree—*Naspla* ... ... | ,, | 7-8 ft. |
| 6 | Olea europea (budded) Olive tree—*Zebbuġ* ... ... | ,, | 7-9 ft. |
| 2 | Persea rosea, Avocadto Pear ... ... ... ... | ,, | 3-4 ft. |
| 6 | Ligustrum nepalense, Nepaul Privet ... ... | ,, | 6-8 ft. |
| 27 | Oranges in variety—*Larinġ* ... ... ... ... | ,, | 3-4 ft. |
| 2 | Acer pseudo platanus, The Sycamore ... .. | .. | 7-9 ft. |
| 2 | Platanus orientalis, Plane tree—*Dolf* ... ... | ,, | 7-9 ft. |
| 2 | Robinia pseudo acacia fol. var., Variegated False Acacia | ,, | |
| 4 | Robinia pseudo acacia umbraculifera, False Acacia ... | ,, | |
| 8301 | Seville oranges, *Larinġ qares or Zapparit* ... ... | in open ground | various sizes |
| 269 | Malta Egg-Blood—*Larinġ twil tad-Demm* ... ... | ,, ,, | .. .. |
| 26 | Malta Blood Orange—*Larinġ tad-Demm* ... ... | ,, .. | .. .. |
| 858 | Malta Egg Orange—*Larinġ twil or Larinġ fin* ... ... | ,, ,, | .. , |
| 176 | Bahia or Navel Orange—*Larinġ ta' Bahia or ta' Brazil* | ,, ,, | .. .. |
| 22 | Sweet or China Orange—*Larinġ ħelu* ... ... ... | ,, ,, | .. .. |
| 29 | Valencia Late Orange—*Larinġ Valenċja Late* ... ... | ,, ,, | .. .. |
| 32 | Smooth-Skinned Egg Orange—*Larinġ twil tal-għasfa* ... | ,, ,, | .. .. |
| 26 | Ordinary Round Orange—*Larinġ ordinarju* ... ... | ,, ,, | .. ,, |
| 199 | Mandarin-orange—*Mandurina* ... ... ... | ,, ,, | .. ,, |
| 21 | Blood Mandarin-orange—*Mandurina tad-Demm* ... | ,, ,, | ,, ,, |
| 27 | Grape Fruit—*Shaddok tal-ikel* ... ... ... ... | ,, ,, | .. .. |
| 26 | Perpetual or ever-flowering Lemon—*Lumija ta' kull qamar* ... ... ... ... ... ... | ,, ,, | various sizes |

## "St. Paul's" Nursery — Rabat.

| Qty. | Kind | Where planted | Height |
|---|---|---|---|
| 182 | Pinus halepensis, Aleppo Pine—*Znuber* ... ... ... | in casks | 7-9 ft. |
| 12 | Nerium oleander, Rose Bay or Oleander-*Oljandru* ... | ,, | 6-7 ft |
| 30 | Morus alba, White Mulberry tree—*Cawsla* ... ... | ,, | 6-7 ft |
| 10 | Cupressus sempervirens, Cypress tree—*Cipress* ... | ,, | 7-9 ft. |
| 334 | Stone Fruit trees—*Frott irqieq* ... ... ... ... | in open ground | various sizes |
| 1000 | Pinus halepensis, Aleppo Pine—*Znuber* ... ... ... | ,, .. | 8-9 ft. |
| 2700 | Pinus halepensis, Aleppo Pine—*Znuber* ... ... ... | .. .. | 4-5 ft. |
| 450 | Cupressus sempervirens, Cypress tree—*Cipress* ... ... | .. .. | 10-12 ft |
| 1200 | Cupressus sempervirens, Cypress tree—*Cipress* ... ... | .. .. | 2-4 ft. |
| 50 | Olea europea, Olive tree—*Zebbuġ* ... .. ... | ,, ,, | 2-4 ft. |
| 140 | Myoporum serratum, Myoporum ... ... ... | ,, ,, | 2-4 ft. |
| 190 | Cercis Siliquastrum, Judas tree—*Harruba ta' Guda* ... | ,, ,, | 2-4 ft. |
| 200 | Nerium Oleander, Rose Bay or Oleander—*Oljandru* ... | ,, ,, | 2-4 ft. |
| 200 | Morus alba, White Melberry tree—*Cawsla* ... ... | ,, ,, | 4-6 ft. |
| 40 | Populus alba, White Poplar—*Luq* ... ... ... | ,, ,, | 4-6 ft. |
| 70 | Quercus Ilex, Holm or Holly Oak—*Bollut* ... ... | ,, ,, | 4-6 ft. |

## "Tax-Xewk" Nursery — Tarxien.

| Qty. | Kind | Where planted | Height |
|---|---|---|---|
| 200 | Cercis Siliquastrum, Judas tree—*Harruba ta' Guda* ... | in open ground | 3 ft. |
| 178 | Cercis Siliquastrum, Judas tree—*Harruba ta' Guda* ... | ,, ,, | 9 .. |
| 350 | Cercis Siliquastrum, Judas tree—*Harruba ta' Guda* ... | ,, ,, | 5-6 ft. |
| 1235 | Cercis Siliquastrum, Judas tree—*Harruba ta' Guda* ... | ,, ,, | |
| 100 | Cercis Siliquastrum, Judas tree—*Harruba ta' Guda* ... | ,, ,, | 6-8 ft |
| 1116 | Cupressus sempervirens, Cypress tree—*Cipress* ... ... | ,, ,, | 8 ft. |
| 349 | Cupressus sempervirens, Cypress tree—*Cipress* ... ... | ,, ,, | 3-4 ft. |
| 173 | Ailanthus glandulosa, Japanese Varnish tree, or tree of Heaven, *Sumak* ... ... ... ... ... | ,, ,, | 7 ft. |
| 433 | Ailanthus glandulosa, Japanese Varnish tree, or tree of Heaven, *Sumak* ... ... ... ... ... | ,, ,, | 3-4 ft. |
| 97 | Sophora japonica, Chinese Pagoda tree ... ... ... | ,, ,, | 4-5 ft. |

| Qty. | Kind | Where planted | Height |
|---|---|---|---|
| 433 | Tamarix gallica, Tamarisk tree—*Bruka* ... ... | in open ground | 5-6 ft. |
| 70 | Caesalpinia Sappan, Sappan Wood ... ... ... | ,, ,, | 4-6 ft. |
| 130 | Koelreuteria paniculata, Panicled Koelreuteria ... | ,, ,, | 5 ft. |
| 100 | Melia Azadarach, Persian Lilac—*Lila* ... ... ... | ,, ,, | 5 ft. |
| 300 | Celtis australis, Nettle tree ... ... ... ... | ,, ,, | 8 ft. |
| 100 | Celtis australis, Nettle tree ... ... ... ... | ,, ,, | 6-8 ft. |
| 100 | Schinus Terebinthifolius, False Pepper tree—*Bżar Falz* | ,, ,, | 4-8 ft. |
| 200 | Larus nobilis, Bay tree—*Rand* ... ... ... ... | ,, ,, | 6-8 ft. |
| 43 | Ligustrum japonicum, Japanese Privet ... ... | ,, ,, | 5-7 ft. |
| 342 | Nerium cleander (white) Rose Bay or Oleander-*Oljandru* | ,, ,, | 5-8 ft |
| 300 | Nerium oleander (red) Rose Bay or Oleander—*Oljandru* | ,, ,, | 5-7 ft. |
| 194 | Nerium oleander (pink) Rose Bay or Oleander—*Oljandru* | ,, ,, | 5-7 ft. |
| 128 | Bauhinia purpurea, Camel's foot tree ... ... ... | ,, ,, | 4-5 ft. |
| 115 | Nerium Oleander, (white) Rose or Oleander—*Oljandru* ... | ,, ,, | bushes |
| 28 | Nerium Oleander, (red) Rose Bay or Oleander—*Oljandru* | ,, ,, | ,, |
| 115 | Nerium Oleander, (pink) Rose Bay or Oleander—*Oljandru* | ,, ,, | ,, |
| 300 | Adatoda Vasica, Malabar nut ... ... ... ... | ,, ,, | ,, |
| 3000 | Myporum rooted cuttings, Myporum ... ... ... | ,, ,, | rooted cuttings |
| 190 | Pinus halepensis, Aleppo Pine—*Żnuber* ... ... ... | in casks | various sizes |
| 50 | Nerium Oleander (white) Rose Bay or Oleander—*Oljandru* | ,, | ,, ,, |
| 33 | Nerium Oleander (red) Rose Bay or Oleander—*Oljandru* | ,, | ,, ,, |
| 20 | Laurus nobilis, Bay tree—*Rand* ... ... ... | ,, | ,, ,, |
| 36 | Ligustrum japonicum, Japanese Privet ... ... | ,, | ,, ,, |
| 16 | Myoporum serratum, Myoporum ... ... ... | ,, | ,, ,, |
| 4 | Cupressus sempervirens, Cypress tree—*Cipress* ... ... | ,, | ,, ,, |
| 18 | Melia Azadarach, Persian Lilac, *Lila'* ... ... ... | ,, | ,, ,, |

## "St. Philip's" Nursery — Floriana.

| Qty. | Kind | Where planted | Height |
|---|---|---|---|
| 35 | Ficus nitida (lucida) Java Fig tree ... ... ... | in casks | various sizes |
| 6 | Acacia cyanophylla, Acacia tree ... ... ... ... | ,, | ,, ,, |
| 30 | Celtis australis, Southern Nettle tree ... ... ... | ,, | ,, ,, |
| 9 | Cercis Siliquastrum, Judas tree—*Harruba ta' Guda* ... | ,, | ,, ,, |
| 8 | Jacaranda mimosaefolia, Mimosa leaved Jacaranda ... | ,, | ,, ,, |
| 18 | Morus alba, White Mulberry tree—Cawsla ... ... | ,, | ,, ,, |
| 13 | Sophora japonica, Chinese Pagoda tree ... ... | ,, | ,, ,, |
| 8 | Schinus Terebinthifolia, False Pepper tree—*Bżar Falz* | ,, | ,, ,, |
| 4 | Olea europea, Olive tree—*Żebbuġ* ... ... ... | ,, | ,, ,, |
| 2 | Tamarix gallica, Tamarisk tree—*Bruka* ... ... | ,, | ,, ,, |
| 25 | Ceratonia Siliqua, Carrob tree—*Harrubà* ... ... | ,, | ,, ,, |
| 2 | Bougainvillea spectabilis, Bougainvillea ... ... | ,, | various |
| 5 | Nerium Oleander, Rosa Bay or Oleander—*Oljandru* ... | ,, | ,, |
| 8 | Phoenix canariensis, Canary Date Palm—*Feniks* ... | ,, | ,, |
| 5 | Ewonymus japonica, Japanese Spindle tree ... ... | ,, | ,, |
| 83 | Ficus nitida (lucida) Java Fig tree—*Fikus* ... ... | ,, | ,, |

## Victoria Gate Nursery — Valletta.

| Qty. | Kind | Where planted | Height |
|---|---|---|---|
| 24 | Tamarix gallica, Tamarisk tree—*Bruka* ... ... | 8 inch pots | 3 ft. |
| 207 | Tamarix gallica, Tamarisk tree—*Bruka* ... ... | 11 ,, ,, | 8 ft. |
| 63 | Nerium Oleander, Rose Bay or Oleander—*Oljandru* ... | 11 ,, ,, | 3 ft. |
| 45 | Coprosma lucida, shining Coprosma ... ... ... | 9 ,, ,, | 2-3 ft. |
| 118 | Pittosporum Tobira, Tobira's Pittosporum ... ... | 5-6 ,, ,, | 1-4 ft. |
| 50 | Pittosporum Tobira, Tobira's Pittosporum ... ... | 11 ,, ,, | 4 ft. |
| 248 | Pittosporum Tobira, Tobira's Pittosporum ... ... | 4 ,, ,, | 1-2 ft. |
| 121 | Schinus Molle, Weeping Pepper , *Bżar Falz* ... ... | 11 ,, ,, | 8-9 ft. |
| 50 | Schinus Molle, Weeping Pepper—*Bżar Falz* ... ... | 4 ,, ,, | 4-6 ft. |
| 90 | Quercus Robur, Common Oak—*Gandar* ... ... ... | 11 ,, ,, | 5-6 ft. |
| 180 | Quercus Robur, Common Oak—*Gandar* ... ... ... | 5 ,, ,, | 1-2 ft. |
| 100 | Ficus nitida (lucida) Java Fig tree—*Fikus* ... ... | 9 ,, ,, | 6-7 ft |
| 286 | Ficus nitida (lucida) Java Fig tree—*Fikus* ... ... | 9 ,, ,, | 2-3 ft. |
| 45 | Acacia cyanophylla, Blue leaved Acacia tree ... ... | 5 ,, ,, | 8-9 ft. |
| | | | 3-4 ft. |
| 30 | Cestrum (Jochroma) tubulosa Tubular jochroma ... ... | 5 ,, ,, | 2-4 ft. |
| 49 | Thuya orientalis, Chinese arborvitae ... ... | 9 ,, ,, | 1-5 ft. |
| 73 | Thuya orientalis, Chinese arborvitae ... ... | 6-7 ,, ,, | 2-3 ft. |
| 29 | Tecoma Stans,' Yellow Trumpet Flower Tecoma ... ... | 9 ,, ,, | 2-5 ft. |
| 107 | Genista monosperma, White-flowered Broom ... ... | 7-9 ,, ,, | 2-3 ft. |

| Qty. | Kind | Where planted | Height |
|---|---|---|---|
| 18 | Eleagnus angustifolius, Narrow-leaved Oleaster—*Oliva specjosa* ... ... ... ... ... ... | 11 inch pots | 5 ft.<br>3 ft.<br>5 ft. |
| 14 | Punica Granatum, Pomegranate tree—*Rummien* ... | 11 ,, ,, | seedlings |
| 250 | Latania borbonica, Borbon Palm—*Latania* ... ... | 5 ,, ,, | 2 ft. |
| 21 | Latania borbonica, Borbon Palm—*Latania* ... ... | 11 ,, ,, | 2 ft |
| 200 | Phoenix canariensis, Canary Date Palm—*Feniks* ... ... | 9 ,, ,, | 3 ft |
| 98 | Phoenix canariensis, Canary Date Palm—*Feniks* ... ... | 11 ,, ,, | 3 ft |
| 24 | Corypha australis, Southern Fan Palm ... ... | 9 ,, ,, | seedlings |
| 91 | Corypha australis, Southern Fan Palm ... ... ... | 5 ,, ,, | 2 ft. |
| 34 | Chamaesrops excelsa, Tali Fan Palm—*Gummar* ... | 9-11 ,, ,, | seedlings |
| 51 | Duranta Plumieri, Plumier's Duranta ... ... | 11 ,, ,, | 4-5 ft |
| 110 | Ceratonia Siliqua, Carrob tree—*Harruba* ... ... | 5 ,, ,, | 3 ft |
| 286 | Ceratonia Siliqua, Carrob tree—*Harruba* ... ... | 9 ,, ,, | seedlings |
| 100 | Washingtonia robusta, Thread-bearing Palm ... | 5 ,, ,, | ,, |
| 62 | Phoenix canariensis, Canary Date Palm—*Feniks*. ... | 5 ,, ,, | ,, |
| 120 | Asparagus Sprengeri, Asparagus—*Spraġ* ... ... ... | 5 ,, ,, | 1 ft. |
| 27 | Asparagus Sprengeri, Asparagus—*Spraġ* ... ... ... | 9 ,, ,, | 7-8 ft. |
| 115 | Schinus Terebinthifolia, False Pepper, *Bżar Falz* ... | in open ground | 4 ft. |
| 200 | Tamarix gallica, Tamarisk tree—*Bruka* ... ... | ,, ,, | 6 ft. |
| 130 | Tamarix gallica, Tamarisk tree—*Bruka* ... ... | ,, ,, | 5-6 ft. |
| 13 | Cercis Siliquastrum, Judas tree—*Harruba ta' Guda* ... | ,, ,, | 5 ft. |
| 324 | Ailanthus glandulosa, Japanese Varnish tree or tree of Heaven—*Sumak* ... ... ... ... | ,, ,, | 5-7 ft. |
| 94 | Koelreuteria paniculata, Panicled Koelreuteria ... | ,, ,, | |
| 120 | Melia Azadarach, Persian Lila—*Lila'* ... ... ... | ,, ,, | 8 ft. |
| 150 | Nerium Oleander, Rose Bay or Oleander—*Oljandru* ... | ,, ,, | 5-6 ft |
| 533 | Nerium Oleander, Rose Bay or Oleander—*Oljandru* ... | ,, ,, | various |
| 17 | Jacaranda mimosaefolia, Mimosa-leaved Jacaranda ... | in casks | ,, |
| 30 | Schinus Terebinthifolia, False Pepper—*Bżar Falz* ... | ,, | ,, |
| 20 | Phoenix canariensis, Canary Date Palm ... ... | ,, | ,, |
| 2 | Kentia Forsteriana, Forsterian Kentia—*Kenzja* ... ... | ,, | ,, |

San Antonio Nursery.

| Qty. | Kind | Where planted | Height |
|---|---|---|---|
| 175 | Ficus nitida (lucida) Java Fig tree—*Fikus* ... ... | in open ground | 2-3 ft. |

## Trees and Shrubs supplied.

18. The following table shows the number of trees and shrubs furnished during the year from the Public Nurseries:

| To whom furnished | Ornamental trees | Ornamental shrubs | Orange and other citrus trees | Other fruit trees |
|---|---|---|---|---|
| Public Plantations ... ... | 1373 | 6 | — | — |
| San Antonio Public Garden ... | 18 | 54 | 24 | — |
| San Antonio and Verdala Private Gardens ... ... | 6 | 12 | 6 | — |
| Buskett Public Gardens ... | — | — | 160 | 66 |
| Valletta, Floriana and other Public Gardens ... ... | 73 | 370 | — | — |
| Villa Rundle and Public Plantation — Gozo ... ... | 54 | 9 | — | — |
| Government Institutions ... | 79 | 221 | — | — |
| Private Growers ... ... | 8 | 254 | 190 | 67 |
| Total ... ... | 1611 | 926 | 380 | 133 |

*Fruit Trees Scions Distributed.*

19. Numerous scions of several varieties of oranges and other fruit trees have been also supplied, those of the Malta Egg-Blood Orange being in great demand.

20. The amount collected from the sale of trees, firewood, etc., from the Public Nurseries and Plantations was £68. 8. 2½ as against £104. 15. 3 last year.

*Villa Rundle, Gozo.*

*Maintenance.*

21. This garden has been kept in good order. During the year the following trees and shrubs have been added: 1 Acacia cyanophylla, 2 Eleagnus angustifolia, 3 Nerium Oleander, 1 Tamarix gallica, 1 Pittosporum Tobira, 3 Bougainvillea Sanderiana, 1 Montanoa grandiflora, 2 Echium fastuosum, 1 Genista alba, 4 Hibiscus rosa-sinensis, 1 Tecoma Smithii, 1 Jochroma tubulosa, 1 Cestrum Newilli, 1 Lantana hybrida and 4 Chrysanthemum fructescens.

*Trees and Shrubs Replaced.*

22. The following trees and shrubs have been replaced: 2 Acacia cyanophylla, 1 Quercus Robur, 3 Eleagnus angustifolia, 2 Bougainvillea Sanderiana, 1 Echium fastuosum, 1 Hibiscus rosa-sinensis, 4 Tecoma stans and 8 Roses in variety.

*Public Plantations, Gozo.*

*Maintenance.*

23. The total number of trees planted during the year was 235, of this number 119 represented replanting of badly damaged and destroyed trees.

*New Plantations.*

24. The following is a detailed list of the new plantations:

| | |
|---|---|
| Wied "ta' Bużrumbaw" L/O Victoria ... ... | 20 Mulberry trees |
| Via Nadur "Ta' Xhajma" L/O Victoria ... ... | 14 Pine trees |
| Wied "Ta' Xhajma" L/O Nadur ... ... ... | 12 Poplar trees |
| Strada Sta. Maria — Qbajjar, Marsalforn ... ... | 20 Tamarix trees |
| Via Żebbuġ L/O Victoria .. ... ... ... | 12 Tamarix trees |
| Via Mġarr L/O Xewkija ... ... ... ... | 8 Jacaranda trees |

*Public Nurseries, Gozo.*

*Maintenance.*

25. The Public Nurseries at Gozo have been stocked with trees and shrubs as much as space permitted.

*Propagation.*

26. The following is a detailed list of the trees, shrubs and creepers propagated by means of seeds, cuttings, layers and budding:

"Villa Rundle" Propagation Section: 10 Nerium Oleander, 50 Tamarix gallica, 53 Celtis australis, 25 Morus alba, 2 Ficus rubiginosa, 5 Coprosma lucida, 7 Datura arborea, 6 Veronica spicata, 4 Montanoa grandiflora, 2 Hibiscus rosa-sinensis, 8 Cycas revoluta, 11 Chrysanthemum fructescens, 30 grafted Roses and 62 Briar Roses as stocks to be grafted next year.

"Tad-Dawwara" Nursery: 16 Latania borbonica, 14 Ficus nitida (lucida), 143 Tamarix gallica, 50 Morus alba, 40 Pelargonium hederaefolium, 7 Solanum Wendlandii, 6 Olea europea and 100 Pinus halepensis.

*Trees, Shrubs and Creepers supplied.*

27. The following table shows the number of trees, shrubs and creepers furnished during the year from the Public Nurseries:

| To whom furnished | Ornamental Trees | Ornamental Shrubs | Creepers |
|---|---|---|---|
| Villa Rundle ... ... ... ... | 7 | 15 | 5 |
| Public Plantations ... ... ... | 235 | 4 | — |
| Government or other Institutions ... | 15 | 38 | 9 |
| Total ... ... ... | 257 | 57 | 14 |

I have the honour to be,

Sir,

Your obedient servant,

JOHN BRIFFA,

Superintendent

# APPENDIX IV.

## Report of the Plant Pathologist. (*)

Sir,

I have the honour to submit the following report on the work done in Plant Pathology during the year 1934-35.

### I. Imports subject to Phytopathological Restrictions.

There were 1,183 consignments of agricultural produce subject to phytopathological restrictions. These consisted of citrus fruits imported from Sicily, Spain, Tripoli, Tunis, Jaffa and Egypt; onions and garlic from Egypt and Italy; potatoes from the British Isles, Holland, Italy, Czeco-Slovakia and Roumania; and parcels of live-plants, ornamental bulbs and leaf mould from England, Belgium, Holland, Luxembourg, Italy and Egypt.

The citrus fruits included: Oranges, estimated at 811,649 dozens, Lemons, estimated at 109,900 dozens, Mandarine oranges, estimated at 18,242 dozens, and, Grape-fruit, estimated at 833 dozens.

Potatoes were imported as follows:

a) For seed purposes:

Champions, 30,390 bags of 2 cwt. each from the North of Ireland, and, 205 bags of 2 cwt. each from the Irish Free State.

Northern Invincibles, 3,465 bags of 2 cwt. each from the North of Ireland. Up-to-Date, 6,267 bags of 2 cwt. each from the North of Ireland, and 5 bags of 2 cwt. each from the Irish Free State.

Arran Banner, 52 bags of 1 cwt. each from England, Arran Cairn, 2 bags of 1 cwt. each from England, Arran Pilot, 20 bags of 1 cwt. each from Scotland, Great Scott, 150 bags of 1 cwt. each from England, Majestic, 62 bags of 1 cwt. each from England, Royal Kidney, 5 bags of 1 cwt. each from England, Eigenheimer, 350 bags of 50 kgs. each from Holland, Triumph, 150 bags of 50 kgs. each from Holland.

b) For table use:

The potatoes imported for table use amounted to 1.161,995 kgs. net weight. These were imported from Italy, Holland, the Irish Free State, Bulgaria and Hungary.

The potatoes imported for seed purposes from the North of Ireland left much to be desired as seed-potatoes, containing very often high percentages of tubers affected with Blight, Dry and Wet Rot, and bacterial diseases. One consignment of Northern Invincibles was especially contaminated with Black Leg Disease, and this on sowing yielded a very poor and sickly crop, most of the plants withering away as soon as the new tubers attained the size of a hazelnut.

### II. Export for which Phytopathological Certificates have been issued.

There were 269 consignments of exports for which certificates of freedom from diseases and pests have been issued to meet the phytopathological restrictions of the country of destination. These included: potatoes for the British Isles, Belgium, Germany, Tunis, Palestine, Austria and Switzerland; cumin seed for London, Holland, Chile, Germany, Brazil, the United States of America and the Argentine Republic; onions for Tunis, Egypt, Sweden, Norway and France; vegetables for Italy, and, small parcels of plants for England, Ireland, Tunis and Italy.

### III. Departmental Activities in the Field.

#### 1. THE CLEARING OF TREES FROM RAMALINA AND OTHER LICHENS.

The clearing of trees from Ramalina and other Lichens in the Boschetto Public Gardens has been continued during the spare time obtainable from other work, and 1,134 trees were cleared of these growths during the summer months. These trees were mostly olive trees, loquats or Japanese medlars and carob trees. Citrus trees were cleared during the two preceding years. In many cases it was found necessary

(*) This Report was found on the desk of the late-lamented Mr. Paul Borg, F.C.S., F.Z.S. the Plant Pathologist, who died unexpectedly on the 6th May, 1936. G.M.

to hard prune the trees, and this entailed, of course, much extra labour. There remains now to be cleared only the Cypresses and Pines, but these trees are not so thickly covered with lichens as were the other trees of a much older age. It is hoped that the cleaning of the trees shall be completed this summer, when the gardens shall lose their venerable aspect, and resume their original primness.

### 2. THE ROOT ROT (ARMILLARIA MELLEA).

Following the recent outbreaks of *Armillaria mellea* which have been experienced during the last three or four years, and which have now been traced to a dealer in manure, the disease appeared in orchards at Girgenti, Għajn-il-Kbira and Ġnien iż-Żgħajr. On examination it was found that there were 17 citrus trees and 698 pear-tress affected by the disease. These trees are growing in a heavy clayey soil for which scavenger's manure is used by the growers. Fortunately the pear-trees affected were all large trees and therefore it was possible to expose the roots and to apply the treatment properly. In many cases it was found necessary to remove enough soil from the main roots to enable a labourer to get under the tree to cut off some of the larger roots; the cavity being then refilled with the soil removed, liberally mixed with sulphate of iron. A number of trenches, 3 feet deep, were also dug and refilled in the same manner to prevent the spread of the disease.

It is of course too early yet to state what the result of the operation, which was a difficult one, is going to be, but the new growths on the trees give hope of success.

### 3. THE BLUE MOULD (PENICILLUM ITALICUM).

Following a spell of very moist, warm weather in November and December, the Blue Mould, *Penicillum italicum*, developed with extraordinary virulence on all Citrus fruit, bringing about the early rot of a high percentage of the crop. Usually this mould makes its appearance in December on the fly-bitten fruit, but this year healthy fruit was attacked as well, and thick rinded varieties and the bitter orange no less than the softer skinned ones.

Several remedies were tried without success to check the spread of the plague, atmospheric conditions remaining very favourable to the development of the fungus. Some improvement, however, was experienced after spraying with a solution of alum one ounce to the gallon.

### 4. THE POTATO BLIGHT (PHYTOPHTHORA INFESTANS).

The winter crop of potatoes was very promising until the middle of November, when a spell of warm moist weather, with a S.E. breeze, brought about a severe attack of Blight which destroyed the foliage in all the unsprayed fields. Late in November the wind shifted to N.E. and developed into a fierce gale which lasted unabated for four days and after that dragged on with less violence for another week. The spray from the sea was carried across both Islands and caused damage to the crops even at Mosta, Lija, Żebbuġ and other places, occupying the central parts of Malta. The storm was followed by a heavy fall of rain which lasted for several weeks in succession, carrying the spores from the leaves to the tubers, in consequence of which it is estimated that over a third of the whole of the winter crop of potatoes was destroyed.

The winter crop of potatoes in these Islands was always considered as a catch crop and sometimes gives very poor results, although in a few lucky years it may yield a heavier crop than the spring or main crop and even fetch better prices abroad. It is only lately that it has acquired importance owing to the demand for the tubers which sometimes prevail on the Dutch and Central markets of Europe.

There was no really early spring crop this year owing to the stormy weather and rains mentioned above. The main crop also sustained heavy losses from the injured or contaminated sets obtained from the heavily diseased seed imported from Irland. Weather conditions were, however, very favourable and held out to the last, with the result that the crop was fairly good. There was, of course, a mild attack of Blight, which was inevitable after what happened to the winter crop, but this outbreak was effectively kept under control with Bordeaux Mixture aided by the fine weather.

## 5. THE DOWNY MILDEW AND THE POWDERY MILDEW OF THE VINE.

Last year the grape growing season began with alarming symptoms of a bad crop. Both the Downy Mildew of the vine, *Plasmopara viticola*, and the Powdery Mildew, *Oidium Tucheri*, were in evidence on the young shoots before the time of flowering, menacing a very virulent attack throughout the spring. Prompt action was taken by the staff of this Department and a vigorous propaganda was carried out among the owners. The Government also placed chemicals and sprayers as well as other help free of charge at the disposal of the poorer growers.

The timely spraying of the vines before or at the time of flowering averted a failure of the crops, which otherwise would have certainly been the case, as the warm and moist unfavourable weather held out longer than expected. The crop, however, was fairly good, although some losses were experienced in the less forunate districts.

## 6. THE BLACK SPOT OF THE ROSE (AETINOMEMA ROSAE).

In January last an alarm was raised by rose growers that roses were shedding their leaves and in some cases actually died. On examination it was found that the roses were suffering from an attack of *Aetinomema rosae*, the Black Spot of the rose. The disease had spread from a consignment of rose-bushes received two or three years before and was disseminated in the gardens of Lija, Attard, Balzan, Mosta and Rabat in Malta and Victoria in Gozo. The Howard Garden at Rabat and Villa Rundle in Gozo were most severely hit by the disease. A general survey revealed that 5,118 rose-bushes distributed in 21 gardens were badly affected. Treatment was begun at once to prevent further dissemination of the disease. The rose-bushes in these gardens and in the immediate vicinity were sprayed twice with Bordeaux Mixture half strength, and three times with Potassium Sulphide sprays 1 in 250. Chemicals were placed at the disposal of growers, who were also instructed to collect all spotted leaves and to take the precautions which were necessary to prevent as far as practicable further damage, while all necessary help was extended to them by the staff of the Department. It is feared, however, that the disease will not be controlled by these means, as the results so far obtained are not quite satisfactory.

## 7. WHITE DERMATOSIS OF THE LEMON.

In a lemon-grave at Nadur, Gozo, consisting of 310 trees developed a white dermatosis on the fruits and leaves. The leaves became of a paper white colour with a brilliant glaze; the fruit, almost normal in size, was less white and without a glaze. The injury on both the leaves and the fruit was evidently the work of Acarids, probably *Tenuipalpus cuncatus*.

The garden was sprayed twice with the sulphur-lime mixture to prevent further dissemination of the pest, and if possible to effect a cure. The results obtained were very satisfactory, and the new foliage and crop of lemons appear to be free of the injury which had rendered the fruit unsaleable.

## 8. THE WOOLLY APHIS AND APHELINUS MALI.

Through the good services of the Phytopathological Observatories of Verona and Turin, this year we succeeded in obtaining colonies of *Aphelinus mali*, the parasite of *Eriosoma*, which you requisitioned through the R. Observatory of Rome. The first batch of twigs from Verona reached me on the 2nd July, 1934, and the next morning I proceeded to Gozo and before noon I had planted the first colonies in the Ramla valley. I specially selected this site for planting the first colonies because the place is favoured with a sandy soil and in my opinion it was much more probable that Aphelinus would thrive on this soil and escape the severity of the weather during the winter to reappear the following summer, than on clayey or other compact soils on which as a rule, especially in Malta, apple-trees are grown. The site selected at Ramla is also well spared from winds and at the same time exposed to the sun, while the trees were badly infested by the aphide and showed an *optimum* of conditions for the easy establishment of the parasite. On opening the box containing the twigs, I found

that the twigs had suffered a little during the voyage, but there were many parasitized aphides out of which *Aphelinus* had not yet emerged.

From a few remaining twigs and from the colonies received later from Genoa on the 5th August and from Turin on the 14th September of the same year, as well as from other colonies which I reared in the Laboratory, I distributed the beneficial parasite in the following localities :—

In Gozo — at San Blas — in 5 places,
at Gnien Emrik — in 1 place,

In Malta — at Mtahleb — in 7 places,
at Gnien iż-Żgħir — in 2 places,
at Buskett — in one place,
at Misrah Suffara — in 1 place,
at Maddaliena Cliff — in 1 place.

All these colonies developed rapidly invading the infected trees and parasitizing the aphides, but in Malta, especially at Buskett, Mtahleb and Misrah Suffara, its progress was seriously hampered by hordes of the seven-spotted ladybird (*Coccinella septempunctata*) which at this time of the year pass regularly northwards over the Islands in their migrations and alight on clumps of vegetation in search of aphides and scale-insects. The good services of this ladybird to check the woolly aphis in its teeming numbers have been observed by me on several occasions, and in some cases the cleaning of the trees from the pest has been very thorough indeed, but of course, in this particular case the ladybird made no distinction between the injurious aphides and the endophogous beneficial insect which they harboured.

As was expected *Aphelinus* re-appeared early in May on the apple-trees in the Rabla valley and early in June it appeared also at Gnien Emrik and San Blas, so that in Gozo the beneficial parasite has taken a firm hold wherever it was colonized. In Malta, owing doubtless to the unexpected visit of the ladybirds at a most critical moment, *aphelinus* failed to re-appear at Buskett, Gnien iż-Żgħir and Misrah Suffara, but re-appeared in June at Maddliena-Cliff and at Mtahleb, which is the most important centre of the cultivation of the apple-tree. Colonies from these two places were immediately taken and planted on the aphides in those places where it had failed to re-appear at least up to the end of June 1935. Of course I do not exclude the possibility that in these places, the beneficial insect might have also re-appeared unaided by mid-summer, since the land is of a heavy clayey kind, very cold in winter, which will certainly delay the development of the insect during the first hot months of the year, and the colonies of *Aphelinus* were planted rather late last summer and were further thinned by the ladybirds. At any rate, I hope that *Aphelinus* is now established in both Islands and shall continue to confer its benefits from year to year for the future, although of course, I do not by any means expect the total eradication of the pest from our orchards.

## 9. SCALE INSECTS.

Although all the *Coccidae* are usually dangerous pests and should always be treated with distrust, the Scale-Insects of economic importance in these Islands are *Icerya Purchasi*, which is now efficiently controlled by its special parasite *Novius Cardinalis*; *Chrysomphalus dictijospermi minor* which seriously injures Citrus trees, roses and some ornamental plants to the extent of causing their death, especially the mandarine orange, citrons and roses; *Aulacapsis pentagona*, which may cause the drying up of the more tender twigs of some stone-fruits and the mulbery; *Parlatoria lucasi* and *Alytilapsis citricola* which, although they cause no appreciable injury to the trees, may render Citrus fruits unsightly and scarcely marketable; *Ceroplastes rusci* which lowers the vitality of fig-trees; *Dactylopius destructor* and *D. longispinus* which may cause Citrus fruit to drop and kill certain flowering bulbs like *Amaryllis* and *Pancratii*; and *Eriococcus auracariae* which may cause the death of young Auracarias. *Aspidiotus hederae* sometimes covers the leaves and twigs of ornamental trees, especially of Eucaliptus, Oleanders and Myoporums, but it is not recorded that

any of these trees ever succumbed to its attacks. Of all these scale-insects, the one that has proved most difficult to deal with is *Chrysomphalus dictjospermi minor*, known as the Pau-rarege in France and bianco-rossa in Italy. Its best parasite, *Aspidiotiphagus lounsburgi*, was introduced twice into Italy from Madeira, where it is firmly established, but on each accusion it failed to make its re-appearance during the following seasons. However, *Chrysomphalus* is easily controlled with white oil emulsions, such as Volck and Albalineum and if the treatment is repeated four or five times during the season at intervals of 30 days the eradication of the pest from a garden can be effected.

*Anhacaspis pentagona* was imported some years ago and caused much alarm at first, but it was soon found out that the pest is easily destroyed with a spray of Permanganate of Potash, $^{2}/_{00}$. Generally one spray is sufficient to clear a tree of this pest, the permanganate burning the margins of the scale and exposing the insect under it to the influences of the weather.

*Parlatoria luccasi* and *Mytilapsis citricola* are also seriously hampered with permanganate washes, but these pests have also many enemies preying on them, among which the principal are the ladybirds *Chilocorus bipustulatus* and *Adalia bipunctata*, the lace-wing fly *Chrysopa perla*, and species of *Dacruma*.

*Ceroplastes rusci* is efficiently kept in check by the moth *Thalpocharas scitula*, but when for some reason or other this beneficial Lepidopter is scarse, fig-trees soon become covered by its waxy-scales. In these circumstances treatment has to be delayed until winter, that is until the fig-trees shed their leaves, when a single application of thick wash of milk of lime will completely clear the infested trees of the pest.

*Dactilopius destructor* and *D. longispinus* as well as *Eriococcus auracariae* are controlled with Volck emulsion as well as with permanganate washes, and flowering bulbs, when badly ingested with Dactilopii are often rid of the pests if brushed with cresol and methylated spirits, 1 to 40.

The scale-insect which engages every year the more serious attention of this Department is *Chrysomphalus*. This scale-insect was imported from Italy on some rose bushes in 1914 which were planted in a garden at Attard. It soon spread with alarming rapidity to the numerous groves and ornamental gardens of this district and thence to many parts of the Island and to Gozo. Last year the annual campaign against this pest was made as usual, and a general survey of the groves and orchards of both Islands revealed 8,964 Citrus trees, 108 fruit trees and 1,209 ornamental trees, infested by the pest. The number of infected trees was larger than that of the preceding year but the infestation was of a much milder nature. These trees, distributed among 455 growers, were sprayed twice with Volck emulsion during the season.

Fumigation with HCN gas might have given better results, but is discouraged owing to the thickly inhabited villages round which our groves and orchards are clustered.

## 10. THE EUROPEAN FRUIT FLY (CERATITIS CAPITATA).

The European Fruit Fly, *Ceratitis capitata* and its congener *Ceratitis Hispanica* have been rather too much in evidence last year. The early figs, peaches, apricots and nectarines were comparatively free of injuries from the pest, but the later varieties and practically all pears and Citrus friuts were severely damaged. The two flies, though having the same habits, differ in many respects. The Indian Fruit Fly, *C. capitata*, was imported from India along the Suez Canal to Egypt, Sicily and Malta during the latter quarter of the last century; the Spanish Fruit Fly, *C. hispanica* originated from the Azores whence it spread to Portugal, Spain, Algeria, Tunis, Tripoli and thence to Malta much about the same time.

*C. capitata* is larger than *C. hispanica* and keeps its wings stretched out when in a state of repose, while *hispanica* keeps them folded like the common house-fly. The markings of the two flies are very similar though not exactly the same, but the brown spots are much deeper in *capitata*.

Another interesting difference is their behaviour towards the direct rays of the sun. While *capitata* likes to bask in the direct rays of the sun and reposes for preference on the fruit, *hispanica* rests on the trunk and branches away from the light and never goes to the fruit except to oviposit. Both flies, however, are equally destructive, though *hispanica* is prevalent early in the season and *capitata* begins to swarm only after July.

The problem of the control of this pest is a difficult one, especially as among its hosts it includes the caper plant which clothes the cliffs and wastes of both Islands. The remedies hitherto applied to reduce the damage caused by the fruit-fly in these Islands consist of:

1) removing windfalls and other rotting fruits and destroying it with fire or by burying in quick lime;

2) tilling the soil under the trees to expose the pupae to the action of the weather;

3) protecting delicate fruits, such as pears, with muslin bags;

4) injecting carbon bisulphide to the soil to destroy the pupae during the saeson;

5) spraying with soap washes 4% or water that has been used for washing clothes. This applys only to Citrus fruit. Fly traps have not yet been introduced, because experiments carried out some eight years ago with vinegar and with molasses and arsenicals did not give good results, but a few trials made during the year under review with frementing bran and clensel are very promising and next year a full trial will be made with these contrivances.

In spite of the above measures the fruit flies are bound to continue to multiply in their legions with more or less the dire results which are experienced from year to year, so long as the vast neglected breeding places of the pest which in these Islands take the shape of abandoned prickly pears (Opuntia) plantations and fig-trees of all sorts, the fruit of which owing to its negligible price and to more lucrative occupations, is often left ungathered to fall and rot under the trees, are left unmolested.

The parasites hitherto tried elsewhere have not given very encouraging results and the climatic conditions of these Islands are too severe for much hope. At the same time during the latter half of the winter and throughout the whole of the spring there is practically a complete absence of the fruit-fly from our orchards, this being its hybernating period in the soil or in dried friuts as pupa or on the caperplant. However, from experiences obtained in Hawaii Islands, which are at a much lower latitude, it appears that *Opius humilis* may show some success from March to June and *Diachasma tryoni* during the hotter months.

## II. OTIORRHYNCUS CRIBRICOLLIS.

*Otiorrhyncus cribricollis* is not known to reproduce itself in these Islands, neither does it appear regularly every year, but occasionally it flies over from Sicily in considerable numbers, along with the swarms of the common house-fly, *Musca domestica* and the stable-fly, *Stomoxys calcitrans*, which during the months of May and June invade the North-East coast of Gozo. It is queer that insects in their migratory habits do not appear to have realized that the land bridge which once joined Europe to Africa has disappeared ages ago, and still follow their ancient routes.

In these Islands, *Otiorrhyncus cribricollis*, which in Italy feeds on several species of *Medicagoes*, attacks the tender buds of pear-trees and apple-trees, causing considerable damage. The insect has the habit of dropping to the ground at sunset and hiding in the soil during the night and in the morning it climbs up the trunk to continue its nefarious work. This habit affords easy means of control, because by painting the trunk with some sticky substance or by using grease-bands the pest is caught in its

early climb up the tree. The mixture employed for this purpose with good results consisted of Castor oil, 4 parts and Resin, 1 part. An allied species to this pest, *Otiorrhyncus rahcusensis* var *siculus* gnaws the mandarine leaves in Sicily; but this species has never been observed in these Islands.

## 12. AULACOPHORA FOVEICOLLIS.

*Aulacophora faveicollis* is observed more or less every year in these Islands devouring the leaves of the cultivated Cucurbitaceaus plants, especially the melon and the water-melon, although gourds and pumpkins are by no means spared. Last year there was an attack of special virulence by this pest and much damage was done in both Malta and Gozo. Of course the application of arsenicals would have stopped the plague at once, but owing to a not unreasonable fear that the use of this chemical may at some time contaminate the scanty water supply of the Islands, the use of this chemical is not encouraged.

Fortunately the Department held a small stock of the preparation "Potagine", which has fluosilicate of Sodium as its principal ingredient, and its liberal application to young plants soon put a stop to the activities of this pest.

## 13. THE BARK-BEETLE.

The bark-beetle, *Scolytus rugulosus*, is still giving serious trouble to our growers. Owing to other pressing work a survey of the infested districts was not carried out this year, but from a hasty examination it is clear that many of the trees known to be infested have recovered from the attack. The treatment consisting of sprays with Potassium sulphide solutions was repeated, but the situation is still critical. The insect appears to be on the wing during the best part of the summer and should therefore be considered as continually on its nefarious work.

## 14. CERAMBIX MILES AND CAPNODIS TENEBRONIS.

*Cerambix miles* and *Capnodis tenebrionis* are two very destructive tree borers which cause annually considerable damage to our fruit orchards. The former attacks the apple and the pear tunnelling extensive galleries in the heartwood from the base of the stem upwards into the larger branches, while the latter tunnels a net-work of galleries under the bark of peaches, nectarines, apricots and plums, close to the base of the stem. Both insects take about two years to reach the adult stage. While *Cerambix* lays its eggs singly or in twos and threes on different trees, *Capnodis* often lays as many as two hundred eggs on the same tree, at not more than a foot above ground. Of course repeated attacks of *Cerambix* will kill the affected trees, but when *Capnodis* lays its eggs on the trunk of a tree there is no chance for that tree, and its death is certain within two years.

In 1920 it was found out that *Capnodis* does not attack the almond whether sweet or bitter and accordingly a vigorous propaganda was made among the growers of both Islands to use this stock for grafting stone-fruits. The apricot, of course, does not take on this stock and consequently for this stone-fruit the wild apricot had to continue to be used. By following this advice the growers had the satisfaction of seeing their new plantations immune to the attacks of this pest. Such, however, is not the case with *Cerambix* which takes its all every year. Fortunately *Cerambix miles* does not attack the vine in these Islands, as it does in Spain along with *Cerambix velutinus*, where every year much damage is done to the vineyards.

Grease bands do not give satisfaction; at least they were tried without success, the two beetles being strong enough to tear themselves away from the adhesive substance, should they chance to venture on it. The application of plugs of cotton wool soaked with carbon bisulphide to the lower aperture of the tunnels, kills the larva of *Cerambix* instantly, but, of course this treatment can only be applied when most of the harm has already been done. It was found that painting the base of the stem up to about 1½ feet from the ground with a strong milk of lime gives a good protection, the young larva on hatching being impotent to break the thin layer of lime, or perhaps the adult female avoids to lay on a smooth surface. The mixture becomes more

consistent and dries like paint if to every 2lbs. of unslaked lime a handful or two of copper sulphate is added. This preventive measure is now commonly applied in our orchards twice a year, that is in March-April and in August-September when the adult insects are on the wing.

### 15. TOXICITY OF THE BORDER PETUNIA.

Prompted by the discovery of Abbé Calès that the Petunia plants exercise a special influence on the Colorado Beetle, whereby these insects collect thickly on these plants in infected districts and die as soon as they eat of the leaves or flowers, the following experiments were carried out in the laboratory to test the poisonous qualities of the plants with respect to other insects, *in the absence of the Colorado Beetle.*

Six adult plants, in pots, of the border Petunia were used for the experiments and the following pests were tested in captivity, viz: *Meloe violacens, Chrysomela americana, Epicametis hirta, Cetonia aurata, Pieris brassicae* and *Diloba coeruleocephala.*

*Meloe violacens* (adult beetle) and Pieris and Diloba (larvae) died immediately after eating of the leaves of the plant. *Epicometis hirta* and *Cetonia aurata* died alike after eating the leaves or the flowers, but more quickly after eating the flowers. *Chrysomela americana,* which is a sister beetle to Doryphora succumbed very slowly after eating the leaves (5-6 days) and more quickly after eating the flowers (2-3 days).

The experiments show that the flowers of the Petunia are more poisonous than the leaves and that this toxicity does not affect all insects to the same extent.

### 16. DETERMINATION OF DISEASES AND PESTS BY THE IMPERIAL INSTITUTES

During the year we solicited the services of the Imperial Institutes of Entomology and Mycology for the determination of the following pests and diseases:

*Aulacophora foveicollis* — which was found feeding ravenously on cucurbitaceous plants.

*Otiorhynchus cribricollis* — an irregular visitor from Sicily which injures the buds of apple and pear-trees.

*Xeris spectrum* — was imported from India along with a consignment of pith-helmets.

*Anthracnose ponctuèe* of the vine — a relatively harmless affection due to conditions of environment.

*Speira densa* — a harmless saprophyte.

*Fusarium oxysporum* — caused severe injury to plots of fenugreek grown for experimental purposes.

*Bacillus melanogenes* — Black Stem Rot of the potato on crops grown from Irish seed.

## IV. Technical Instruction to Farmers and Growers.

The technical instruction extended by the Department to farmers and growers is now expanding its sphere of action from year to year. The obdurate conservatism which animated the growers in 1920 and made them resist any suggestion for the treatment of the hosts of plant diseases and pests which devastated their fields and orchards has now been transformed into an eager desire for information and an alert compliance with the advice that is given to them. As a reults of this salutary change, the small staff of this Deparment is no longer able to cope with the demands for help and demonstrations which are being asked from it, and in numerous cases only a very limited aid could be extended. These conditions are aggravated in the case of the treatment of trees, when special technique is required and only a few of the growers can help intelligently in the work, owing to lack of experience in hard pruning and other operations which may be necessary.

During the year under review 3,005 farmers and growers received advice, chemicals, instruction or technical demonstrations at their own farms or orchards or other help from the Department. These included:

309 farmers who received help for the spraying of the winter and spring crops of potatoes for Blight;

51 growers who received help for the treatment of vines against the Downy Mildew and the Powdery Mildew of the vine;

20 growers who had trees treated for the Root Rot;

14 growers who had their lemon trees treated for a severe attack of Dermatosis which ruined the fruit and reduced the leaves to a paper-white colour.

461 growers who had their groves, orchards or ornamental gardens sprayed for scale insects;

69 growers who had their stone-fruit trees treated for the Bark-beetle.

An extensive campaign and general treatment was also carried out among the owners of small ornamental gardens attached to residences for the Black Spot of the rose, which has spread considerably.

Chemicals were also distributed to help the growers in the treatment of plants for diseases and pests which did not require the immediate supervision of the Department. Among these farmers and growers there were:

1099 farmers and growers who received copper sulphate, sulphur in powder or both chemicals for the treatment of fungous diseases attacking field crops, and

52 small growers who received a Compound Nicotine Spray made up of Nicotine 2½%, Iodine 2½% and Cresol for the treatment of minor diseases and pests.

In addition to the above 930 bonafide farmers and growers asked for or otherwise received advice on the treatment of plant pests and diseases by this Department.

### IV. Issue of Certificates and Inspection Work.

The number of phytopathological certificates issued during the year included:

834 certificates of release for agricultural and horticultural produce imported into these Islands, and

269 phytopathological certificates for agricultural produce exported from these Islands.

There were also 349 consignments of agricultural produce accompanied by the certificates prescribed by local regulations. These were released for importation after examination of these documents.

In connection with the issue of these certificates 1095 inspections of agricultural produce were made at the Marsa, or in the Customs Ware Houses, or in private stores, and in connection with the Departmental activities in the field and the supervision of labour under my charge 214 localities in both Islands were visited during the year.

I have the honour to be,

Sir,

Your obedient servant,

P. Borg,

Plant Pathologist.

# APPENDIX V.

## Report of the Adviser in Agricultural Marketing and Controller of Agricultural Exports.

### I. INTRODUCTION.

The period under review is from the end of November, 1934, when the Controller of Agricultural Exports arrived in Malta, to May, 1936. * From a statistical standpoint it is best to present a report at the end of the agricultural year around October: however, whilst in May most crop seasons are incomplete an effort has been made to make this report as up to date as possible, particularly with reference to exports for the information of exporters.

The advisory and executive sides of the work naturally overlap considerably and, with exports particularly, advice given has in due course resulted frequently in executive action, as for example with the cumin seed export control.

The work involved in organising the export control and in dealing with other questions concerning exports has limited the time which could be devoted to internal marketing matters. In any case it was necessary first to acquire a knowledge of local conditions before making any recommendations regarding local marketing. Such work as has been done in this connection has been largely of a preliminary nature and thus is only mentioned briefly in this report.

The work carried out is summarised under the headings of the principal export crops and of the other principal marketing questions.

### 2. POTATOES.

(a) *Export Control Legislation.* — Ordinance No. III of 1935 to control the export of agricultural produce was passed on the 18th January, 1935. This was a revision of the Potato Export Industry (Emergency) Ordinance, 1930, (Ordinance No. XIV of 1930). The Potato Export Regulations, 1935, were issued under Ordinance No. III of 1935 on the 29th January, 1935. The new Ordinance and Regulations had been prepared prior to December, 1934, and subsequently certain minor amendments were proposed. The internal marketing of agricultural produce for export is a very complicated problem and it will probably take some time to reach a fair and final solution. It is not feasible to discuss all the aspects of the question in detail but a few of the difficulties may be mentioned, such as the illiteracy of most of the farmers and of many of the brokers, the lack of adequate capital and of storage accommodation of many of the exporters (with particular reference to the winter crop of potatoes), the fact that exporters wish to purchase exact quantities whilst farmers' crops before reaping can only be estimated approximately by brokers, etc. Revision of the present Ordinance is being undertaken, particularly in connection with limitation of sale by exporters to exporters, some of whom are essentially dealers since the quantities which they export are only a very small proportion of their total purchases.

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* NOTE: — The Controller of Agricultural Exports was absent from Malta on leave from December 4th, 1935, to February 21st, 1936, inclusive. Whilst on leave, visits were paid to Northern Ireland regarding seed potato imports and to Glasgow, London, and Holland regarding potato exports.

(b) *Inspection.* — Inspection of potatoes for export has been carried out regularly in connection with the requirements regarding grading, etc. of the Potato Export Regulations, 1935. Early in the 1935 spring crop the compulsory separation of A (medium) and B (large) grades with shipments of round potatoes to the United Kingdom was introduced for the first time : this was essential for satisfactory marketing in view of the very variable nature of consignments when these grades were not separated and the results of the grading were well received by the trade.

During 1935, 816 packages were refused for export with the winter crop and 1,345 packages with the spring crop. These refusals for export involved respectively 51 and 247 separate refusals of lots or parts of lots on delivery on the quay. More than half the rejections were on account of bad size grading : the other rejections were on account of blight, mixture of varieties, damaged and green tubers, sprouting, etc. ; blight and sprouting were restricted to the winter crop and in the spring crop insect damage, particularly by mole crickets, was more prevalent. Except in the case of mixing of varieties, most of the packages rejected were passed for export after regrading. Refusal of packages for export was avoided as far as possible by instruction of brokers (packers) on the quay and in the country. During the 1936 crops, up to the 14th May, some 1,920 packages were rejected for the various reasons outlined above apart from some 900 packages refused during the spring crop on account of the abnormal potato moth infection.

In connection with inspection 706 licences for export of potatoes were issued in 1935 and 2,307 packages were sealed to meet the requirements of importing countries. During the 1936 export season, up to the 14th May, 562 licences were issued.

The 1930 Potato Export Ordinance stated that brokers must work on a commission basis only but apparently since little check was carried out on their operations they continued to deal on their own account to a considerable extent. With the enforcement of the 1935 Ordinance, which contains a similar provision, this dealing by brokers in export produce, generally at the expense of the farmers, was reduced considerably. Following general checking of public weighers' books during the crop, an extensive check was carried out throughout the island at the end of the 1935 export season with regard to the prices paid to farmers for produce for export. In the majority of cases the prices which the farmers stated that they had received agreed with the prices paid by exporters as shown by the corresponding notes of weight. Legal action was taken against five persons regarding major contraventions of the Ordinance, three of whom particularly seemed to be concerned with payment of incorrect sums of money to farmers. One conviction was obtained, a fine of £10 being imposed, which was upheld on appeal, but unfortunately the other four cases were barred by prescription after the evidence in the principal cases had been submitted.

(c) *General export control administration.* — It was considered to be essential that the two Potato Export Inspectors should be employed on a permanent basis and after a further six months satisfactory service in 1935 this action was proposed and approved.

The use of numbered licences for export bound in duplicate was introduced and the payment of inspection fees by exporters by monthly account was approved, as compared with the payments made previously to inspectors on the quay with respect to individual consignments. The Customs Department continues to supply statements of exports which are checked with export licence records to prevent evasion of inspection : in addition, the total consignments licenced for any one shipment are checked very soon after sailing with the shipping agent's totals.

The regulations issued under Ordinance No. XIV of 1930 stated that brokers of potatoes for export must be licenced : 33 brokers were licenced during the 1930-31 season but after that only two licences were issued. In connection with the 1935 Ordinance, 71 persons or firms were registered as exporters and 110 middlemen were licenced as

brokers for the 1934-35 season. In 1935-36, up to May 20th, 67 exporters were registered and 85 brokers were licenced. To meet the requirements of the Potato Export Regulations a standard form of note of weight was prepared for general use with produce for export: books of notes of weight in quadruplicate are sold at cost price to public weighers; 11,380 such notes of weight were issued during the 1934-35 season and 7,170 during the 1935-36 season up to May 20th.

The question of accommodation of produce for export continues to receive consideration. During the period under review the roofing of the "potato inspection shed" has been completed and lighting installed throughout. In addition, as recommended, the ends of the sheds have been partially closed in to reduce the damage by rain. The question of a suitable method of enclosing the shed is receiving consideration as is also the problem of extra accommodation: unfortunately little extra space suitably situated for ease of shipment remains available.

Correspondence has been carried on with official and trade circles abroad with respect to exports. Lists of exporters of agricultural produce have frequently been supplied at the request of importers abroad. A statement giving details of potato and onion exports from Malta is prepared weekly for publication in the "Weekly Fruit Intelligence Notes" which is widely circulated amongst the trade in the United Kingdom. Circulars have also been issued frequently with reference to trade matters for the information of exporters and/or brokers.

(d) *Trial potato shipments.* — During the 1935 spring crop, four trial shipments of potatoes, totalling 176 packages (131 cwt.), were made to the United Kingdom with the principal object of investigating the suitability of different types of packing. In particular the opinion had been expressed in some circles in England that the boxed peat pack would be necessary if a satisfactory trade was to be established with the United Kingdom. From the trial shipments it was established that:—

(1) Except possibly for shipments of very early and immature potatoes, which have a tendency to "sweat", the 1 cwt. Mataro (Spanish) type basket pack is equally suitable and is preferred by the trade.

(2) That whilst there is no appreciable difference between the condition on arrival of potatoes packed in 1½ cwt. or 1 cwt. casks, ½ cwt. cylinder baskets and 1 cwt. Mataro type basekts, the Mataro type basket is preferred. If casks are used those of 1 cwt. capacity are favoured by the trade.

Incidentally, the shipments, whilst not of commercial size and with variable types of packing, gave a net return after deducting all packing, shipping and marketing expenses of £52. 13s., or £8 per ton.

(e) *Seed potato imports.* — Commercial inspection of the seed potatoes imported was carried out in 1934-35 and 1935-36 and a record was kept of the wastage present on arrival. Since, however, some of this work was performed in collaboration with the Plant Pathologist it is reported on separately.

## 3. CUMIN SEED.

Prior to 1935, cumin seed, the agricultural export second in importance to potatoes, was not subjected to commercial export inspection, exports only being inspected for freedom from insects when so required by importing countries. Provision was made in 1926 for analysis of purity but exporters practically never availed themselves of these facilities, only one such analysis being on record. When buyers stated purity requirements, exporters generally hoped that the consignment would prove satisfactory, a rebate being paid if necessary, and sales on "sample" were not necessarily made on

a "sample" of the consignment in question, this being largely on account of local marketing conditions.

After February, 1935, consignments of cumin seed for export were regularly analysed to ascertain the percentage of foreign matter present, and the results of these analyses were communicated, up to the time when the export regulations were published, free of charge to exporters. This action had a considerable educational effect on exporters and dealers in the country. In addition, the legal and/or the commercial requirements of importing countries were ascertained by a Departmental circular, the general average being a purity requirement of at least 95%. This purity of not more than 5% foreign matter (Grade 1 Cumin Seed) is the principal requirement of the Cumin Seed Export Regulations which were published at the end of November, 1935. A Grade 2 Cumin Seed of from 5% to 8% foreign matter is also permitted for export provided that proof is produced that the buyer wishes to purchase this grade of seed. In addition, a certificate of analysis is now issued for every consignment exported. Facilities are also provided for analysis of samples for the information of local buyers.

Up to the date of publication of the export regulations, samples from 80 consignments or parts of consignments were analysed, lots from different local dealers being if possible analysed separately. Of these consignments 58% met the Grade 1 requirements, 39% the Grade 2 requirements and 3% were consignments of over 8% impurity. Whilst up to the end of November, 1935, no export regulations were in force and thus inspection was not compulsory, inspection was carried out and licences for export were issued with respect to almost all the cumin seed exported, 70 licences being issued. In several instances consignments were resieved either by order or voluntarily when the impurity was high.

From the date of publication of the regulations to date (15th May, 1936) a further 45 consignments have been licensed for export. In addition, licence for export has been refused for 11 consignments. This has involved a further 81 analyses. Only one consignment of Grade 2 cumin seed has been exported.

The quality of the seed exported has thus been improved considerably and, whilst the exports of the 1934 and 1935 crops overlapped to a fair extent, practically all the 1935 crop has now been exported.

Exports of cumin seed in recent years may be briefly summarised as follows :—

| IMPORTING COUNTRIES | Percentage of exports of Cumin Seed in | | | | |
|---|---|---|---|---|---|
| | 1931 | 1932 | 1933 | 1934 | 1935 |
| South American countries ... | 12 | 16 | 5 | 37 | 35 |
| Germany ... ... ... ... | 24 | 29 | 31 | 23 | 5 |
| Holland ... ... ... ... | 32 | 12 | 21 | 16 | 16 |
| France ... ... ... ... | 8 | 20 | 7 | 5 | 20 |
| Scandinavia ... ... ... | 2 | 1 | 2 | 2 | 7 |
| Other European countries ... | 5 | 8 | 11 | 6 | 12 |
| North African countries ... ... | 15 | 8 | 18 | 4 | 5 |
| Miscellaneous countries ... ... | 2 | 6 | 5 | 7 | under 1 |
| Total Exports, cwts. .. ... | 6,611 | 6,639 | 5,228 | 5,004 | 5,332 |
| Total Values ... ... ... | £12,292 | £7,797 | £7,837 | £11,637 | £11,342 |

It is noteworthy that in recent years exports to South America, particularly to Chile, the Argentine and Brazil, have steadily increased, whilst the combined exports to the Netherlands and Germany have diminished. The decreased exports to Germany in 1935 may be due in part to currency difficulties, but since it is understood that much of the cumin imported by the Netherlands and Germany is re-exported to South America after further cleaning, it would seem that the decreased imports by these

two countries are due largely to the increased direct trade with the consuming countries in South America. Improvement in export quality should help this direct trade and financial returns should also thereby be improved. Exports to France (Marseilles) recovered satisfactorily in 1935, all the exports being made in the last quarter when the seed purity had already improved considerably, and exporters attributed much of their success in this market to this factor. The increased direct imports by Scandinavia in 1935 is also noteworthy. The export of cumin seed to North African countries, most of which are cumin producing, is naturally not very desirable and it is seen that these exports have generally decreased.

## 4. ONIONS.

Some 600 tons valued at £3,863 were exported in 1935, principally to Scandinavia, the exports being distributed as follows :—

| Packages Exported | Sweden | Norway | Holland | United Kingdom | Belgium | Total |
|---|---|---|---|---|---|---|
| Bags ... | 3,496 | 1,364 | 709 | — | 300 | 5,869 |
| Baskets ... | 2,616 | 292 | 391 | 867 | 600 | 4,466 |
| Total Packages | 6,112 | 1,656 | 1,100 | 867 | 600 | 10,335 |

In 1933 and 1934 the quantities of onions exported were 1,192 and 1,505 tons respectively with corresponding values of £2,360 and £3,744. In 1933, exports were made principally to the Netherlands, to the United Kingdom and to Tunis whilst in 1934 exports were made principally to the Netherlands, to Scandinavia, to Lybia and to the United Kingdom.

Since in 1935 no regulations regarding export of onions had been issued, such being deferred until after observation of the local crop and of conditions generally, inspection was not compulsory. Most of the onions were, however, inspected and export licences were issued for 62 consignments at the request of exporters, though on several occasions an export licence (certificate of quality, etc :) was refused when the quality, whilst not sufficiently unsatisfactory to warrant refusal for export under the general terms of the Ordinance, was generally poor. Apart from inspection, 6,878 packages of onions were sealed to meet the requirements of importing countries.

Most of the onions exported in 1935 were unsatisfactory from the standpoints of size grading and of general quality (maturity, freedom from leaves, etc :) and many of the packages used were unsuitable thus resulting in poor condition on arrival at destination.

Onion export regulations were published on May 20th, 1936, for introduction with the 1936 crop and these regulations provide for size and quality grading and for the use of suitable containers of roughly standard capacity.

The onion trade offers possibilities, but the present local varieties, with the possible exception of the round Maltese Yellow onion, are not really suitable for export either from standpoints of keeping quality or of market type requirements. Whilst the enforcement of export regulations will improve the situation, it is considered that before the trade can be expanded appreciably an export variety suited to local conditions must first be established, either by trial of, say, Spanish or Egyptian varieties or by selection of the Maltese Yellow variety.

## 5. MISCELLANEOUS AGRICULTURAL EXPORTS.

When so requested by exporters, exports of other agricultural produce or manufacture were inspected, and during 1935 commercial certificates were issued in respect of three consignments of shredded dried squills and of one consignment of salted

tomato paste. In addition, three import consignments of potatoes were inspected and reported on at the request of the importers.

## 6. EXPORT POSSIBILITIES OF OTHER AGRICULTURAL CROPS.

It would seem that the possibilities of establishing a successful export trade in any other fruit or vegetable are not very favourable, particularly owing to the local weather conditions. Presumably owing to its insular position, the winter and spring period in Malta is relatively long compared with sub-tropical mainland countries. The winter minimum temperatures are not so low as in mainland countries but low mean daily maximum temperatures in March, April and May, such as 59°, 65° and 70° respectively in 1935, with corresponding mean minimum temperatures of 51°, 55° and 60°, inevitably cause comparatively late crop seasons, and with a fruit or vegetable for export a late season generally rules out possibilities of successful marketing. Apart from temperature considerations, Malta is subject to many high winds during the growing season.

With reference to the above statement regarding local climatic conditions it should be remembered that potatoes, cumin seed and onions are all low growing crops comparatively not much subject to wind damage, that potatoes and onions (particularly the former) compared with say tomatoes or grapes do not require very warm weather to grow satisfactorily and mature, and that the marketing of cumin seed is not seasonal.

Trial shipments of tomatoes, grapes, melons and prickly pears were made to the United Kingdom in 1935, but further trials would not seem to be worth while. Apart from the climatic aspects, the general position and the results of the trial shipments may be summarised as follows :—

### (a) Tomatoes.

Two trial shipments totalling 38 crates were made in order to ascertain the requisite picking maturities and shipping conditions. Picking with half-colour and shipping in cold storage (around 50 deg. F.) gave the best results. Picking fruit green and shipping in ordinary stowage was not so satisfactory owing to variable and yellow colour and shrivelling but this might be considered as a possible alternative, though not such a satisfactory, method of shipment. Fruit packed green and shipped in cold storage arrived generally too green and fruit packed with half colour and shipped in ordinary stowage arrived too ripe. The principal points to consider are :—

(1) *The Market.* — Tomatoes are not available in Malta until early June. During June and July there is a preference of 2d. per lb. in the United Kingdom but this is somewhat misleading as regards indicating market possibilities since during this period practically all imported supplies come from the Channel Islands. It is not a question of shipping in competition with non-Empire producers also shipping from some distance (as with the West Indies trade with Canada) but of competing with another Empire producer situated only about 24 hours from the market. Growing costs in Malta under field conditions are less, but against this fact must be reckoned extra shipping costs and inevitable poorer quality on arrival.

(2) *Shipping Facilities.* — The shipping of half coloured fruit to obtain satisfactory results necessitates precooling whilst awaiting shipment and shipment in cold storage. Precooling could probably be arranged locally with private cold-storages (for a start), though present costs are high, but cold storage shipping accomodation would probably be difficult to obtain since ships generally have little such space available on arrival at Malta and the cold storage chambers in June/July are generally being run at relatively low temperatures (unsuitable for tomatoes) for the carriage of apples, pears, etc. from Australia.

Generally, therefore, whilst the prices received (*) for the tomatoes picked with half colour and shipped in cold storage were fairly satisfactory, the expenses of precooling and the difficulty of obtaining suitable shipping accommodation with regular commercial shipments, apart from the marketing aspects, indicates that shipment of fresh tomatoes to the United Kingdom would probably not be a financial proposition.

### (b) Grapes.

Two trial shipments of 10 and 46 boxes of grapes of the Girgentina variety were made in September and October. Cold storage shipment was found to be advisable in order to ensure satisfactory condition on arrival. The grapes were mostly exported in a one layer pack with wood at top and bottom and with individual bunches wrapped in tissue. A loose pack in wood wool, similar to that used in Italy for rail shipment, proved unsatisfactory. The fruit in the first shipment netted a price of about 82% of the local market price but the second shipment resulted in a loss with the fruit arriving on a market by then well supplied with grapes of much better quality. Further trials are not recommended until better table varieties suitable for shipment are available, and even so the relatively late season is a very adverse factor. At present no attempt is made to prepare grapes for table use and this cannot be adequately compensated for by trimming before shipment. In addition, as with tomatoes, suitable shipping facilities are not now available.

### (c) Melons.

Two trial shipments of winter melons were made to London in August and September. The shipments were of 4 and 48 crates respectively, the crates averaging a net weight of about 90 lbs. Taking into account the local market price of the fruit, both shipments resulted in losses. Actually in both instances the returns approximately covered the packing and marketing expenses with no return for the fruit: apart from the cost of the fruit the first shipment gave a small net return and the second shipment a very small loss. It would appear that competition with the Spanish melons which are cheaper and of better quality is not feasible. The packing and condition of arrival of the melons exported was reported to be satisfactory, but the relatively late local season and the generally poor and somewhat variable quality of the local fruit make successful commercial shipment very unlikely.

### (d) Prickly Pears.

A trial shipment of 10 crates of prickly pears, each crate containing 88 fruit in a two layer pack, was made to London in September. The shipment realised a profit of 14s/3d after deducting all expenses, including the local cost of the fruit (2s/3d), these expenses not, however, including any packing labour charges. Whilst the net return was fairly good, the market demand for such a fruit is so small that commercial shipment in any quantity would not be advisable.

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* Note:— Both shipments gave an overall net return of about ¾d. per lb. after deducting all packing and marketing expenses with the exception of picking and packing labour costs. This return covers also those tomatoes picked or shipped under what proved to be unsuitable conditions.

* Note:— In connection with these trial shipments, the assistance and cooperation of the P. & O. Steam Navigation Co., particularly with reference to provision of cold storage accomodation when so required, was much appreciated.

## EXPORTS OF POTATOES FROM MALTA.

| Exports to | Winter Crop | | | | | | Spring Crop | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Casks | ½ Casks | Bags | Baskets | Boxes | Total Tons | Casks | ½ Casks | Bags | Baskets | Boxes | Total Tons |
| Holland:— | | | | | | | | | | | | |
| 1933 | 11,986 | 169 | 15,937 | 1,260 | ... | 2,949 | 25,073 | 3,935 | 546 | 67 | ... | 4,355 |
| 1934 | 1,277 | 298 | 1,128 | ... | ... | 294 | 48,440 | 776 | 21,049 | 209 | ... | 9,068 |
| 1935 | 4,182 | ... | 100 | 402 | ... | 627 | 34,430 | 1,043 | 569 | ... | ... | 5,231 |
| 1936 | 5,721 | ... | 425 | 272 | ... | 852 | 26,347 | 465 | 4,948 | 17 | ... | 4,048 |
| United Kingdom:— | | | | | | | | | | | | |
| 1933 | ... | 66 | ... | ... | 220 | 11 | ... | 7,875 | ... | 133 | 730 | 640 |
| 1934 | ... | ... | ... | ... | ... | ... | 45 | 10 569 | 1,868 | 7,004 | 458 | 1,413 |
| 1935 | ... | 104 | ... | ... | 633 | 20 | 167 | 13,602 | ... | 4,944 | 39 | 1,291 |
| 1936 | 59 | 641 | 1,283 | 438 | ... | 146 | 67 | 16,466 | 161 | 2,797 | ... | 1,423 |
| Belgium:— | | | | | | | | | | | | |
| 1933 | 295 | 6,189 | 100 | 1,475 | ... | 626 | 107 | 50 | ... | ... | 100 | 25 |
| 1934 | 524 | 1,258 | 100 | 194 | ... | 198 | 597 | 3,202 | ... | 71 | 1 | 346 |
| 1935 | 186 | 712 | 1,321 | ... | ... | 147 | 2,549 | 2,965 | ... | ... | ... | 605 |
| 1936 | 3,293 | 1,670 | 7,764 | ... | ... | 986 | 6,501 | 956 | 18,525 | 513 | ... | 1,954 |
| Ceylon: — | | | | | | | | | | | | |
| 1933 | 100 | ... | 25,385 | 287 | ... | 1,453 | ... | .. | 169 | 391 | ... | 39 |
| 1934 | ... | ... | 3,792 | 70 | ... | 238 | 54 | ... | 2,686 | 2,632 | ... | 355 |
| 1935 | ... | ... | 6,243 | 213 | ... | 380 | ... | 120 | 280 | ... | ... | 23 |
| 1936 | ... | ... | 16,159 | 1,036 | ... | 860 | ... | 17 | 195 | ... | ... | 11 |
| Germany:— | | | | | | | | | | | | |
| 1933 | 1,061 | 1.577 | 235 | ... | 40 | 303 | 524 | 980 | ... | ... | ... | 160 |
| 1934 | 306 | 322 | ... | ... | ... | 74 | 729 | 2,714 | 2 | ... | ... | 325 |
| 1935 | ... | ... | ... | ... | ... | ... | 1,057 | 543 | ... | ... | ... | 199 |
| 1936 | .. | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Switzerland: — | | | | | | | | | | | | |
| 1933 | ... | 440 | 1,337 | ... | ... | 106 | ... | ... | 200 | ... | ... | 10 |
| 1934 | ... | ... | 200 | ... | ... | 10 | ... | ... | 420 | ... | ... | 21 |
| 1935 | ... | ... | ... | ... | ... | ... | ... | 213 | 200 | ... | ... | 26 |
| 1936 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | .. | ... |
| Miscellaneous Destinations:— | | | | | | | | | | | | |
| 1933 | ... | ... | 2,362 | ... | ... | 151 | ... | ... | ... | ... | ... | ... |
| 1934 | ... | ... | ... | ... | ... | ... | 71 | ... | 928 | 2,593 | ... | 242 |
| 1935 | ... | ... | ... | ... | ... | ... | 105 | 189 | ... | ... | ... | 30 |
| 1936 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Total Exports: — | | | | | | | | | | | | |
| 1933 | 13,442 | 8,441 | 45,356 | 3,022 | 260 | 5,599 | 25,704 | 12,840 | 915 | 591 | 830 | 5,229 |
| 1934 | 2.107 | 1.878 | 5,220 | 264 | ... | 814 | 49.936 | 17.261 | 26,953 | 12.509 | 459 | 11,770 |
| 1935 | 4,368 | 816 | 7,664 | 615 | 633 | 1,174 | 38,308 | 18.675 | 1,049 | 4,944 | 39 | 7,405 |
| 1936 | 9,073 | 2,311 | 25,631 | 1,746 | ... | 2,844 | 32,915 | 17,904 | 23,829 | 3,327 | ... | 7,436 |

Notes—1. The tonnages are calculated from the containers and are thus not absolutely accurate.
2. The winter crop is far more variable than the spring crop, since the weather conditions are generally more variable during the growing period.
3. The 1933 winter crop and the 1934 spring crop were exceptionally good.
4. The 1936 export figures are those of the exports up to the 18th June and comprise practically the whole of the 1936 crop exports.

## 7. GENERAL MARKETING.

(a) *Marketing Abroad.* — The work carried out with reference to marketing abroad has, with the exception of the trial shipments reported on elsewhere, been principally along lines of consolidating the position of existing markets by improving export quality rather than of opening up new outlets.

With potatoes, all the present production is disposed of satisfactorily and, unless more remunerative markets are obtained than those at present supplied, which seems improbable with existing economic conditions, there is little object in exploring new market outlets when there is no surplus production. A tabular statement of potato exports in recent years is attached. Regarding the

Continental and United Kingdom markets it must be emphasised, for the information of persons not directly connected with the trade, that the Continent demands yellow fleshed and not white fleshed potatoes and the United Kingdom vice versa; thus there can be no question of suddenly switching the bulk of the export trade to the United Kingdom. In these days of tariffs and quotas it is naturally preferable to export most of the produce to Empire countries, but in this connection it should be stated that for trade and diplomatic reasons the trade with the Netherlands seems to be adequately protected. In recent years the percentage of the spring crop exported to the United Kingdom has been steadily increasing, and there has been a further increase in 1936, but any rapid change in export policy cannot be expected unless the Continental market collapses for some reason or other, which would naturally force growers and exporters to study fully the United Kingdom, and particularly the English, market requirements. The principal reasons against any rapid increase in exports to the United Kingdom may be summarised as follows :—

(1) The type of seed imported is principally in accordance with farmers' demands. The farmers plant the varieties which sell at the best prices, yields being equal, and in general the local prices for yellow flesh potatoes have exceeded those for white flesh potatoes despite the import duties with shipments to Holland.

(2) Farmers use the small spring crop potatoes for winter crop seed and thus do not want to reap scrapers, which are demanded by English but not by Continental markets, apart from the fact that lower yields are obtained when potatoes are reaped as scrapers.

(3) With the exception of the Up-to-Date variety, the principal kidney varieties demanded by the English market do not crop well in Malta. Glasgow is the principal market for Malta shipments since round white flesh potatoes can be sold there satisfactorily as well as kidneys and Glasgow is one of the few United Kingdom markets which receives practically no direct shipments from Spain.

With reference to the Dutch market, the situation was complicated very much in 1934 by several changes during the export season in the duties and taxes imposed by the Netherlands Government. Various proposals were put forward in 1935, both direct and through diplomatic channels, the principal request being that even if the duties and taxes could not be diminished they should at least be fixed well in advance on a seasonal basis as introduced at the beginning of the 1935 crop. This fixed seasonal basis, which has been maintained for the 1935 and 1936 crops, has been very useful in helping to stabilise the foreign and local market position.

Regarding Eastern markets, shipments continue to be made principally to Colombo. It is essentially a market for lower grade (small) produce, particularly of the winter crop, though recently a larger percentage of Grade A has been shipped, but the supplies available for export do not permit of any considerable expansion in the near future. Representations have been made for an Empire preferential duty to be imposed, so far without success, but it should be mentioned that the bulk of the Ceylon potato imports are of British origin (from British India, Cyprus, etc :).

The 1935 crop was disposed of satisfactorily, even to the extent of depleting local supplies. The prices for the spring crop were good and were well maintained throughout the season, ranging on an average from about £7 to £9 per ton in the field. The abnormal rainfall shortage in the 1935-36 winter, which was only about half that of the average of the previous eight years, gave good reaping conditions for the winter crop which was of very good quality. The rainfall shortage has, however, resulted in the 1936 spring crop being generally earlier than usual and being mostly reaped during a short period. Whilst the total crop will probably be below average, the supply has for a period, around early May, exceeded market demands with consequent lowering of prices.

Regarding other crops for export the principal marketing questions have already been outlined. Both with cumin seed and onions, improvement in export quality needs primary consideration. Cumin seed is already disposed of to a large number of countries and, with this product particularly, the solution of the question of obtaining

remunerative market outlets is essentially standardisation and control of the quality of seed exported.

(b) *Local Marketing.* — As stated previously, the work carried out to date with reference to local marketing has been largely of a preliminary nature and calls for little comment at this stage.

Contact has been established with the farmers and middlemen with reference to internal marketing of produce for export and, particularly with regard to grading, it is best to begin education in connection with produce for export which can be relatively easily controlled.

A periodically survey of farmers' returns and corresponding retail prices has been carried out and the position appears to be generally satisfactory, percentage price differences ranging from about 35% for relatively non-perishable produce such as potatoes to around 180% for more perishable produce of fairly low unit value such as cauliflowers and globe artichokes. Naturally, in times of glut, particularly with bulky perishable produce of low unit value, the percentage price difference may increase somewhat since prices fall whilst the sales and overhead costs of the retailers remain practically the same. In the past the farmers were not in touch with town markets and rarely travelled and as such were possibly dealt with unfairly in some instances: to-day, however, with the good bus services and the increased competition between pitcali, the farmers are much better informed and it would appear that they receive much fairer treatment than is often considered to be the case. Pitcali prices for any one product at any one time do not seem to differ appreciably.

Regarding methods of sale it should be remembered that sale on a commission basis is that generally most suitable for perishable produce. The introduction of a few central auction markets to provide an alternative method of disposal of produce might be considered at a later date. An investigation of the legal position of pitcali has been completed and legislation to enforce the regular presentation of statements of accounts (including loans) to farmers, giving power also to check the books of pitcali, is being contemplated.

Apart from this possible action, the other most important step would appear to be the investigation of conditions of land tenure as recommended in paragraph 119 (8) of Mr. Stockdale's Report (1934). With reference to agricultural credit generally, as regards long term loans there is ample cheap money available locally for loan on reasonable security and it would seem that no progress can reasonably be made until the question of land tenure is thoroughly investigated. As regards short term loans, much money is undoubtedly lent to farmers by pitcali at low rates of interest which could not be considered by an agricultural bank or credit society, and thus the suggested legislation regarding pitcali would appear to be the best initial step. In addition, it would appear that the farmers are not yet in a fit state of education, apart from their general lack of trust in each other, for cooperative societies to be operated in the near future with any hope of success.

23rd May, 1936.

A. C. Shilr.

## IMPORTS OF SEED POTATOES.

(1934-35 and 1935-36 Seasons).

The quantities of seed potatoes imported for the 1935 and 1936 spring crops are tabulated below, indicating the countries of origin and the sources of supply of the principal varieties.

| Countries of Origin | Quantities of varieties imported (as 2 cwt. bags). | | | | | | Total quantities from each destination (as 2 cwt. bags.) |
|---|---|---|---|---|---|---|---|
| | Champion | Up-to-Date | Northern Invincible | Arran Banner | Eigenheimer | Miscellaneous | |
| Total (1933-34) | 30,766 | 4,845 | 4,019 | 155 | — | 246 | 40,031 |
| 1934-35 Season | | | | | | | |
| Northern Ireland .. | 30,390 | 6,276 | 3,465 | — | — | — | 40,131 |
| Irish Free State ... | 205 | 5 | — | 350 | — | — | 560 |
| Scotland ... ... | — | — | — | 200 | — | 20 | 220 |
| England ... . | — | — | — | 10 | — | 271 | 281 |
| Holland ... ... | — | — | — | — | 350 | 150 | 500 |
| Total (1934-35) | 30,595 | 6,281 | 3,465 | 560 | 350 | 441 | 41,692 |
| 1935-36 Season | | | | | | | |
| Northern Ireland ... | 35,325 | 5,977 | 3,460 | 2,005 | — | — | 46,767 |
| Irish Free State ... | 699 | — | — | 410 | — | — | 1,109 |
| Scotland ... ... | — | — | — | 300 | — | — | 300 |
| England ... ... | — | — | — | — | — | — | — |
| Holland ... ... | — | — | — | — | 900 | 10 | 910 |
| Total (1935-36) | 36,024 | 5,977 | 3,460 | 2,715 | 900 | 10 | 49,086 |

The tabulated statement of seed potato imports calls for little comment. The imports indicate a slight general increase in potato acreage particularly for the 1936 spring crop. The imports of seed of the Champion and Up-to-Date varieties show a general increase; the slight decrease with Up-to-Dates in 1935-36 is largely attributable to the prices for seed of this variety rising owing to the short English crop: the Champion variety being yellow-fleshed is not suitable for sale to England for table use and thus was not affected. The decreased import of the Northern Invincible variety in 1934-35 was maintained in 1935-36, but this was more than offset by the steady increase in imports of the Arran Banner variety. The Northern Invincible variety is by no means satisfactory from a marketing standpoint and it is hoped that a suitable variety will soon be found to replace it. Mid and late season plantings of the Arran Banner variety have given good results; in addition, the variety has been well received by the farmers and if it is also suitable for early planting it may well prove to be a substitute for the Northern Invincible variety: further experience is, however, necessary before this question can be decided.

All consignments were inspected on arrival and from January, 1935, onwards a record was kept of the amount and type of wastage present in each bag examined, a sample of 50 or 100 tubers being taken at random from each bag inspected and examined in detail. The wastage present in the different varieties on arrival, according to the figures recorded during inspection, may be briefly summarised as follows:—

| Varieties of seed potatoes | Number of bags examined | Average percentage affected with | | | Percentage Blight and Wet Rot | Total Percentage Wastage |
|---|---|---|---|---|---|---|
| | | Blight | Wet Rot | Dry Rot | | |
| 1934-35 Season | | | | | | |
| Champion ... ... ... | 214 | 6.6 | 1.2 | 2.9 | 7.8 | 10.7 |
| Up-to-Date ... ... | 101 | 5.1 | 2.2 | 3.5 | 7.3 | 10.8 |
| Northern Invincible ... | — | — | — | — | — | — |
| Arran Banner ... ... | 18 | 0.9 | 2.1 | 4.2 | 3.0 | 7.2 |
| Eigenheimer ... .. | 13 | 0.6 | 0.6 | 2.0 | 1.2 | 3.2 |
| Miscellaneous ... ... | 5 | 0.6 | 0.6 | 1.8 | 1.2 | 3.0 |
| 1935-36 Season | | | | | | |
| Champion ... ... ... | 1,162 | 4.0 | 2.2 | 2.7 | 6.2 | 8.9 |
| Up-to-Date ... ... | 244 | 5.6 | 4.2 | 4.1 | 9.8 | 13.9 |
| Northern Invincible ... | 126 | 3.3 | 4.0 | 3.5 | 7.3 | 10.8 |
| Arran Banner ... ... | 110 | 0.9 | 1.5 | 2.8 | 2.4 | 5.2 |
| Eigenheimer ... ... | 56 | 0.8 | 0.2 | 1.3 | 1.0 | 2.3 |
| Miscellaneous ... ... | 3 | 1.3 | 0.7 | 1.3 | 2.0 | 3.3 |

The combined percentage of blight and wet rot is shown in addition to the percentage of total wastage since the former is absolute wastage whilst portions of tubers affected with dry rot can often be used as seed.

The percentage of wastage on arrival is by no means satisfactory. Examination of the wastage figures of seed from different sources shows that in general the wastage is higher in the seed from Northern Ireland. Whilst this may be partly due to seed quality (as regards disease infection from the field) and to varieties, it is considered that much of the wastage is due to the fact that almost all the Northern Ireland seed is imported in 2 cwt. bags whilst most of the seed imported from other sources is packed in 1 cwt. bags. The 2 cwt. pack undoubtedly slows up the drying out of the packed seed and thus favours spread of wastage and increases liability to heating apart from the fact that with such a large package damage in handling is increased considerably. Trial shipments of dry and damp packed seed in 1936 also indicated the need for as dry a pack as possible. Examination of seed potatoes in Northern Ireland before shipment showed that the seed when shipped was in commercially sound condition.

It is proposed to revise the potato seed import legislation before the 1936-37 season and in particular the prohibition of further use of the 2 cwt. bag pack will probably be introduced. The system in Northern Ireland of inspection and certification of seed potatoes when growing in the field and of subsequent inspection before packing and before shipment was examined and found to be quite satisfactory.

Since farmers naturally reject blighted and wasty tubers when cutting "sets" no rejection or resorting was ordered during the 1934-35 and 1935-36 seasons, except for the rejection of 251 very wasty bags in one shipment in 1936, since resorting would only increase the final cost to the farmers. Owing to the time elapsing between arrival and planting, the farmers' losses from wastage are naturally higher than those recorded here.

As regards germination, weather conditions during the 1934-35 season were very unsatisfactory, there being for example 45 rainy days in December and January with over 11 inches of rain and the weather was cold throughout the planting season. The farmers attributed the poor germination to the wastage present in the seed but undoubtedly it was largely attributable to the climatic conditions, the land being water-logged and cold for long periods, and, with the local practice of planting cut sets instead of whole seed, the risk of the seed rotting when weather conditions are bad is greatly

increased. During the 1935-36 season, germination was generally satisfactory, except with the Up-to-Date variety, the seed of which arrived in poor condition: the warm sunny winter favoured good germination except that the late plantings suffered somewhat from drought.

23rd May, 1936. A. C. SHILL.

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NOTE:— This section of the Report, on the imports of seed potatoes, would also have appeared under the signature of the late Mr. P. Borg, Plant Pathologist, but for his death on the 7th May, 1936.

# APPENDIX VI.

## Report by the Soil Engineer.

Sir,

I have the honour to submit herewith my report for the year ending 31st December 1935.

The Fertile Soil Ordinance (Ordinance II of 1935) was promulgated on the 8th of January 1935.

I was appointed to carry out the provisions of this Ordinance on the 16th January, 1935, and entered upon my duties forthwith.

On the 23rd of April, two Assistants, designated Soil Inspectors, were appointed to help me in my duties and the various villages and districts in Malta were accordingly divided into two categories — East and West — one being assigned to each of these Inspectors.

During the year under review 1143 notices, as required by Law, were received by me, and of this number 206 were partly duplicates and partly were subjected to modifications. Of these 1,025 applied to Malta, while 118 came from Gozo, and the amount of fertile soil saved in each district was as follows :—

MALTA.

| | | |
|---|---|---|
| Hamrun | 2,010 | Cubic Yards |
| Birkirkara | 6,040 | ,, |
| Naxxar | 374 | ,, |
| Guardamanġa | 105 | ,, |
| Pietà | 114 | ,, |
| Msida | 3,212 | ,, |
| Ta' Xbiex | 250 | ,, |
| Gżira | 4,767 | ,, |
| Sliema | 1,414 | ,, |
| St. Julian's | 2,362 | ,, |
| Mensija | 65 | ,, |
| Musta | 1,610 | ,, |
| Għargħur | 131 | ,, |
| St. Paul's Bay | 1,997 | ,, |
| Buġibba | 150 | ,, |
| Mellieħa | 234 | ,, |
| Attard | 140 | ,, |
| Balzan | 1,485 | ,, |
| Birżebbuġa | 2,051 | ,, |
| Kalkara | 1,465 | ,, |
| Kirkop | 415 | ,, |
| Dingli | 530 | ,, |
| Fgura | 670 | ,, |
| Gudja | 430 | ,, |
| Għaxaq | 615 | ,, |
| Lija | 146 | ,, |
| Luqa | 1,552 | ,, |
| Marsa | 1,607 | ,, |
| Marsaskala | 835 | ,, |
| Marsaxlokk | 225 | ,, |
| Mġarr | 225 | ,, |
| Mqabba | 958 | ,, |

The Director of Agriculture.

| | | |
|---|---|---|
| Rabat ... ... ... ... ... ... | 1,117 | Cubic Yards |
| Pawla ... ... ... ... ... ... | 6,198 | ,, |
| Qormi ... ... ... ... ... ... | 5,440 | ,, |
| Qrendi ... ... ... ... ... ... | 233 | ,, |
| Safi ... ... ... ... ... ... | 450 | ,, |
| Siġġiewi ... ... ... ... ... | 791 | ,, |
| Tarxien ... ... ... ... ... ... | 1,315 | ,, |
| Żabbar ... ... ... ... ... ... | 2,444 | ,, |
| Żebbuġ ... ... ... ... ... ... | 355 | ,, |
| Żejtun ... ... ... ... ... ... | 1,641 | ,, |
| Żurrieq ... ... ... ... ... ... | 345 | ,, |
| Total, Malta, | 58,513 | Cubic Yards. |

GOZO.

| | | |
|---|---|---|
| Għasri ... ... ... ... ... ... | 125 | Cubic Yards |
| Kerċem ... ... ... ... ... ... | 270 | ,, |
| Marsalforn ... ... ... ... ... | 160 | ,, |
| Qala ... ... ... ... ... ... | 258 | ,, |
| Sannat ... ... ... ... ... ... | 610 | ,, |
| Nadur ... ... ... ... ... ... | 1,162 | ,, |
| Munxar ... ... ... ... ... ... | 95 | ,, |
| Għarb ... ... ... ... ... ... | 225 | ,, |
| Għajnsielem ... ... ... ... ... | 178 | ,, |
| Xgħara ... ... ... ... ... ... | 443 | ,, |
| Sta. Lucia ... ... ... ... ... | 46 | ,, |
| San Lawrenz ... ... ... ... ... | 251 | ,, |
| Victoria ... ... ... ... ... ... | 1,151 | ,, |
| Xewkija ... ... ... ... ... ... | 635 | ,, |
| Żebbuġ ... ... ... ... ... ... | 500 | ,, |
| Total, Gozo | 6,109 | Cubic Yards. |

The total amount of the fertile soil which has been saved by the operation of this Ordinance amounts to 58,513 cubic yards in Malta and 6,109 in Gozo; grand total 64,622 cubic yards.

Of this total 10,690 were utilized for the formation of 318 back gardens; 3,762 cubic yards were availed of for the formation of 35 fruit and kitchen gardens; 9,564 cubic yards served for the reclamation of 175 fields at back of building sites where rocks were covered; 34,468 cubic yards were carted for the formation of fields and Government Nurseries and reclamation of quarries and waste lands.

Applications were received from private individuals asking for fertile soil to be dumped on their lands, and wherever possible they were put in contact with individuals who had given notice of their intention to remove soil in terms of this Ordinance.

This procedure was found to be very accommodating to the parties concerned, and, after a while, several of them started making their own dispositions for the transfer of soil from one place to another, referring the final arrangements to this Department for approval.

## RECLAMATION.

Reclamation has been carried out in a great number of cases, those of outstanding magnitude being:

a) Il Handaq at Qormi, the owner of the holding being Pawlu ta l-Ahmar, who covered 8 tumoli with 2,120 cubic yards of fertile soil from building sites and also

from the site of a new street off Sda. Vittoria, Qormi, the plots thus reclaimed being turned into irrigated land at once.

b) The holding of Antonio Borg, ta' Lira, at Marsa also received 660 cubic yards, but as there is no water there for irrigation purposes, the potentialities of the new mould were not fully exploited.

c) Tal Motz, limits of Żejtun, where carob trees were felled, rock cut and brought to a more or less even surface, and 1 tumolo reclaimed and turned into irrigated land, with soil mainly from what are now public thoroughfares.

d) Xghara ta' Sant'Indrija, Mensija, where 3,510 cubic yards were utilized, and what had previously been an area of practically bare rock was at once leased to a neighbouring farmer for £7 per annum.

e) The rocky wastes of the Villa Dragonara have been reclaimed, receiving 1,126 cubic yards, the soil from many building sites, but mainly from those in the D'Argens Road at Gżira, being utilized for this purpose.

f) The Xghara ta' Santa Margherita at Musta, where the coralline rock was levelled and the fine rick mould overlying the same geological formation in Ponsonby Street of that township was availed of, receiving 240 cubic yards of soil.

g) Field in St. Andrew in Via tal Balal receiving 1,330 cubic yards.

h) Field at back of Vincenzo Bugeja Institute, 1,320 cubic yards.

i) Field in Via Gżira 660 cubic yards.

j) Government Experimental Farm, Hammieri, 4,262 cubic yards.

k) Fields in Lepers' Asylum, Inghieret, 1,896 cubic yards.

l) Reclamation of different Quarries, 592 cubic yards.

m) Portanier's Villa, Wardija, 120 cubic yards.

n) Reclamation of different Waste Lands, 5,239 cubic yards.

## COLLECTION OF SOILS.

A collection of Maltese and Gozitan Soils has been started, on the basis laid down by Sir John Murray, of the **Challenger** Expedition, that our soils overly strata of the same geological formation; and it is hoped to complete it in the early future.

## ASHES.

Our Maltese Soils are proverbially fertile. Possessing as they do so many factors which contribute to their immense productivity, they however lack one constituent which is necessary to plant life, viz. Potash.

This substance, however, is ready to hand in the form of ashes, the by-product of our bakeries, and particularly of our country-ovens which, burning as they do vast quantities of thistles, prunings and other unrequired wood, turn out a very respectable supply of pure potash.

Ignorance combines with prejudice to deprive us of this important source of fertility, for our farmers and market gardeners decline to have on their holdings, and bakers and others go to some trouble in dumping it on waste places and other sites regarding which complaints are not likely to arise.

This is an instance where, in my opinion, much useful work could be done in the way of demonstration and propaganda with the scope of inducing our farmers and others to avail themselves of this important fertilizer which is so cheaply and conveniently to hand. Personally, I have seized every opportunity that presented itself of inculcating upon husbandman and others the inestimable advantages that are being wilfully lost by the wanton waste of this very valuable material and dwelling upon the importance of the potash deposits of Alsace as a factor in world agriculture.

## SUMMONSES.

Fifteen persons were summonded by the Police in connection with the Fertile Soil Ordinance during the year under review; of these there was an acquittal in one instance,

while the others were admonished, reprimanded, fined and given a period for the removal of the soil.

## STAFF.

A few days after my appointment, the services of a clerical assistant were placed at my disposal. When the Soil Inspectors, two in number, were appointed, this clerical assistant was entirely absorbed by another branch of our Department and the work hitherto done by him now devolved upon the newcomers. I have personally instructed these Soil Inspectors as to their duties and responsibilities, and can report that they are very diligent, active and conscientious, and I have only praise for the manner in which they discharge all the duties inherent to their post.

## TARIFF FOR CARTING MOULD.

Shortly after the Fertile Soil Preservation Ordinance came into operation, there was a very sharp rise in the price demanded by motor-truck owners for the transport of this soil. As there was a likelihood of these men killing the goose which was laying such golden eggs for them, I addressed the Secretary of the Traffic Control Board on the subject of a scale of tariffs for these cases; but, as after a while prices became more reasonable, coming under the wholesome influence of honest competition, this danger passed away and the ordinary laws of demand and supply now govern this branch of motor-conveyance.

## INFRACTIONS.

Certain difficulties have been experienced in regard to the operation of Ordinance No. II of 1935 (Fertile Soil Preservation Ordinance). In this regard I would point out that the standard excuse proffered by individuals who have "buried" fertile soil is always one and the same, viz : that the material overlying the fertile soil has been placed there provisionally and that it is the intention of such accused persons to remove such material and the underlying soil at an early date. And this when the layer of rubbish overlying the soil is such as, on the face of it, would give rise to the implication that such individuals are mentally deficient. In an attempt to keep my hand on all persons who have filed notices in connection with this Ordinance, I have added the following provisions in giving permits for the disposal of fertile soil, viz :

a) " You are kindly requested to inform this Department as to the identity of the carters or others responsible for carting your soil, before starting transporting.

b) " Also inform this Department when the soil has been totally removed and prior to dumping in of material.

c) " All soil is to be removed from the building site and half the road immediately opposite, before structural operations are commenced ".

## GOZO.

I must single out the Gozo people for special praise in so far as the working of the Fertile Soil Ordinance is concerned. Thrifty and industrious to a degree, the Gozitans exercise much diligence in utilizing any amount, however small, of fertile soil that may exist on building sites, for purposes of reclamation. I have also noticed stiff clay — which would be disregarded in Malta — carefully preserved and spread in the open for the elements to work on it, so as to become fit for vines in a couple of years' time. Also, the rubbish left over when building operations are terminated, and which happens to be mixed with some fertile soil, is spread in the back-yard and at once planted with prickly pears; though in this case the Gozitans' stock-breeding pro-

pensities and the potentiality of prickly-pear blades as fodder when not a tuft of green grass is available, should be kept in mind. On the whole, Gozo gave me no trouble in working the Fertile Soil Ordinance.

I have the honour to be,
Sir,
Your obedient servant,

R. J. D. Cousin.